

# THE IRON AGE.

THURSDAY, FEBRUARY 8, 1900.

## The Most Perfect Machine Shop.\*—VI. Building No. 16 of the Schenectady Works of the General Electric Company.

BY S. D. V. BURR.

### Electrically Driven Bement, Miles & Co.'s Planer.

Fig. 37 represents a large planer built by Bement, Miles & Co., having a stroke of 20 feet, and taking in

proper is an electric clutch which adds to the efficiency of the machine in the most remarkable way. It is automatic in its operation. At the end of each stroke the reversal occurs instantly, so that there is absolutely no time lost in the driving mechanism picking up the load. This reversal takes place so accurately and so positively that there is no danger in planing to within the fraction of an inch of a shoulder. The efficiency of the machine by reason of the application of this clutch has been increased over 25 per cent., this being a most conservative statement of what has been actually accomplished on certain pieces of work with this drive in comparison with the original construction with belt drive. This planer, when driven by the belt, required 34.5 kw. on the quick reverse; by the present method it requires but 17.5 kw. Running free in direction of cut there is no great saving. It will, therefore, appear that a smaller motor will be needed to drive the planer when fitted up in this way than by the belted method. We regret that

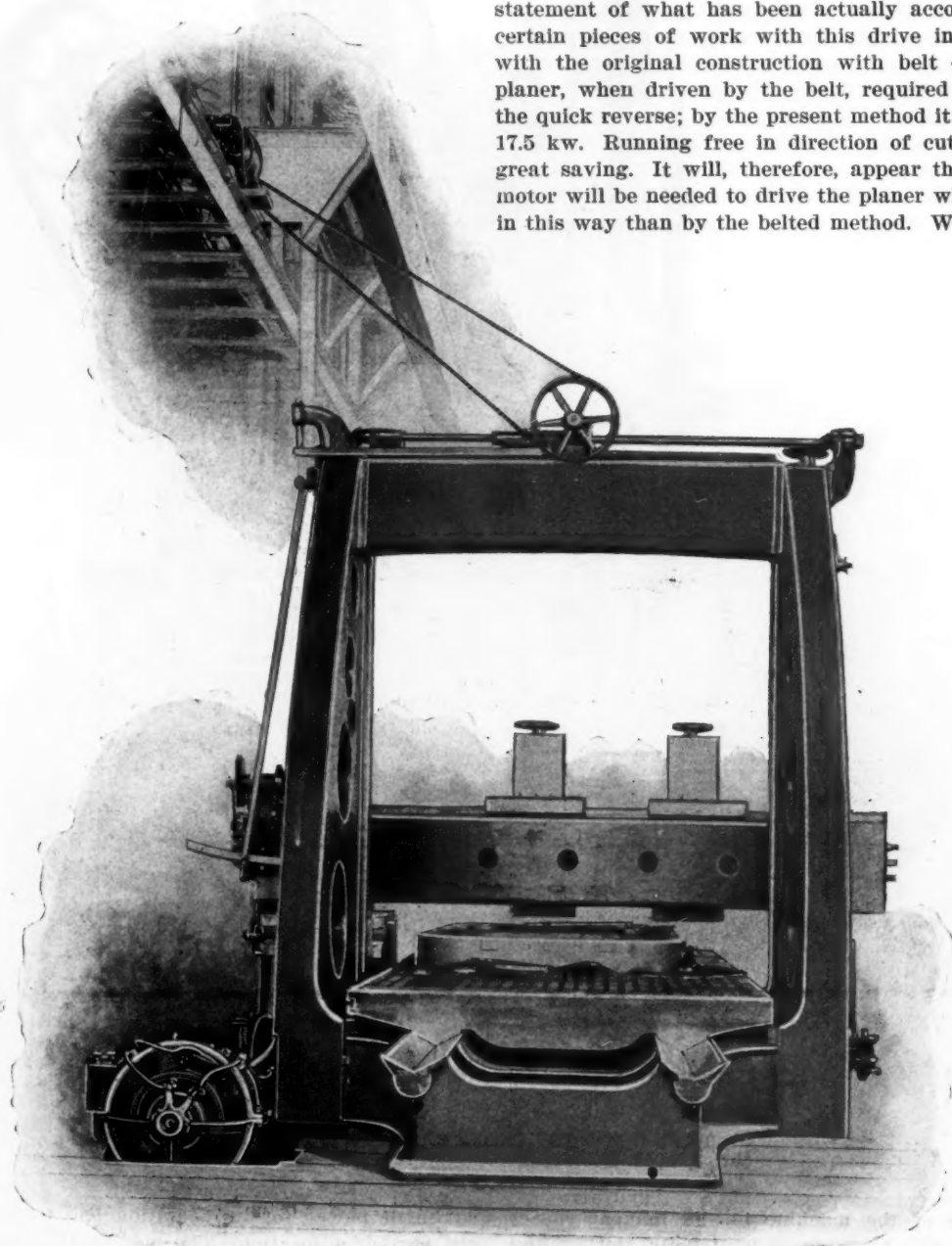


Fig. 37.—Bement, Miles & Co.'s Planer with Motor at Side of Base.

### THE MOST PERFECT MACHINE SHOP.

work 120 x 120 inches. The little motor, shown on top of one of the girders, is for raising and lowering the cross rail. Power for driving the planer is applied to the machine by a motor placed alongside the base, as shown. Between the motor and the driving mechanism

at the present time we have not the privilege of more fully describing the design and construction of this electric clutch.

### Slotting Machines With Different Drives.

The next four views, Figs. 38 to 41 inclusive, represent different types of slotting machines from different

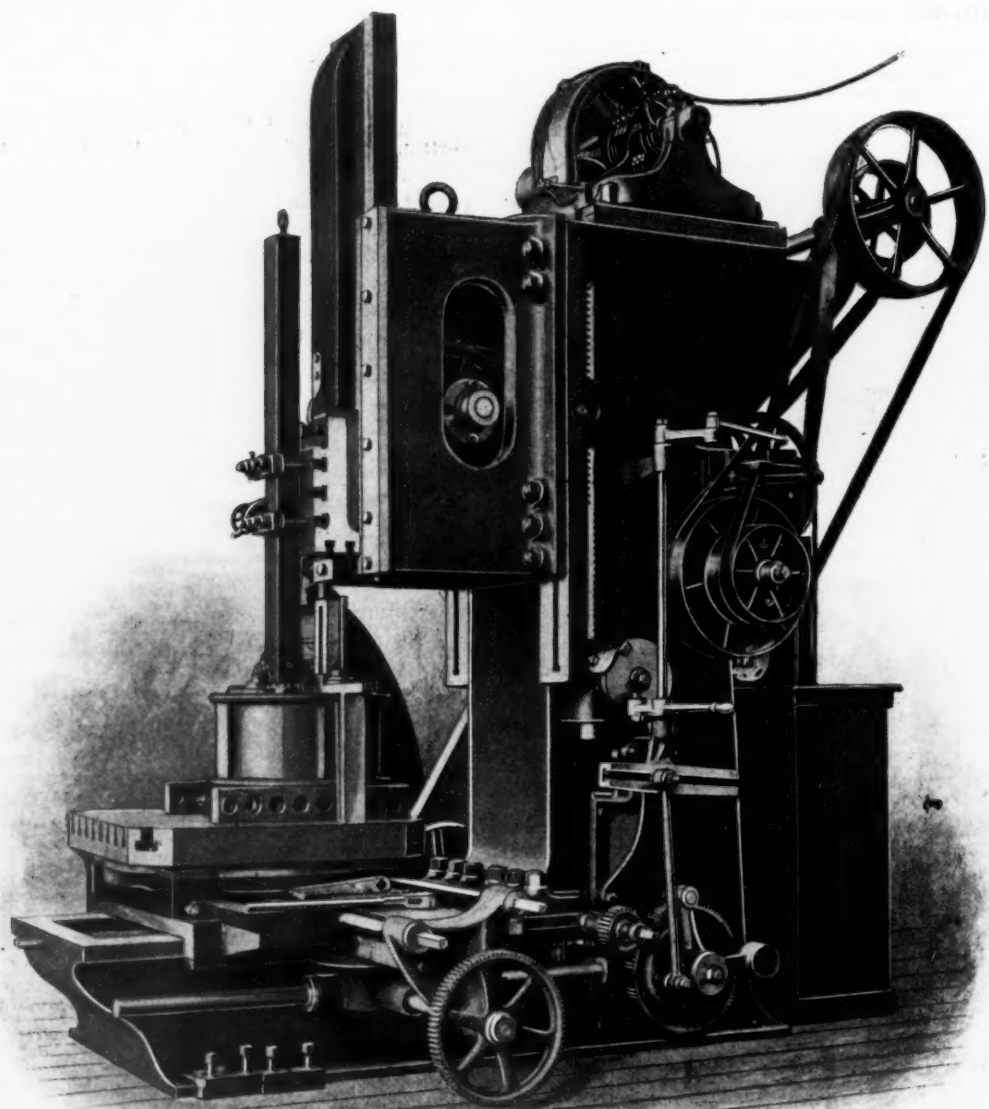
\*See *The Iron Age*, January 4, 11, 18, 25 and February 1, 1900.

builders, and the designs of which required different or special applications of the motor in each individual case. The plan of the Bement, Miles & Co.'s machine was such as to readily lend itself to the placing of the motor directly on top of the frame. This tool is one of the largest in the place, having a stroke of 60 inches and taking in work up to a diameter of 120 inches. But little alteration was demanded by the motor.

The next engraving, a Putnam slotter, Fig. 39, required the placing of the motor at the base on one side. Practically the same thing was done in the Bement slotter shown in Fig. 40, while we again find the motor

were, of course, adapted to the motor, so that there are really two classes of machines—one modified by the company to accommodate the electric drive and the other, new tools, which were ordered especially for this building, and in which the necessary alterations were made by the builders.

Whether or not the motor is in the best position, or the position which would have been adopted if the original design had contemplated its use, was a question which could not be considered at all. The same is true of all the other standard tools in the building. The tool was there, and it was of a certain design, and the appli-



*Fig. 38.—Bement, Miles & Co.'s Slotter with Motor on Top.*

#### THE MOST PERFECT MACHINE SHOP.

placed on top of the machine in the Bement slotter shown in Fig. 41. There are several Betts slotters and one Sellers slotter, all of which were more or less modified by the builders to suit the motor drive.

It must be remembered that these machines are all of standard design by several makers, and were intended to carry the ordinary belt drive. The alterations on all tools previously driven by belts in order to employ the motor were made in the General Electric Company's Works; and, of course, each case had an aspect peculiarly its own, and which required treatment different from all the others.

The tools which were moved from other departments into No. 16 were driven by belts, and when transferred

ation of power for its operation had to be placed in one particular location. The modification called for by the motor was restricted. To express it in another way, in each instance and in each design there was only one place in which the motor could be put without changing unduly the driving mechanism of the whole machine, and this varied in almost all the machines.

It was different with the latest Newton machines, and the other new tools noted previously. They were designed with particular reference to a motor drive, and therefore the position of the motor assumed prominence and the design was more or less changed in order to fit this requirement.

*(To be continued.)*



## The Federal Bankruptcy Law.

WASHINGTON, D. C., February 6, 1900.—E. C. Brandenburg, in charge of bankruptcy matters in the Department of Justice, has prepared a statement addressed to the Philadelphia Credit Men's Association, in which he presents some considerations in opposition to the movement now on foot looking to the repeal of the Federal Bankruptcy law. Mr. Brandenburg emphasizes some of the advantages both to the debtor and creditor which the law has already developed and calls attention to the necessity for the co-operation of the creditor class in order to secure the full benefit of the statute.

"The great moneyed establishments," says Mr. Brandenburg, "some of whom now seek the repeal of the law,

alike, even to the extent that any conveyance or judgment obtained during the four months preceding the bankruptcy proceedings that works an illegal preference is voidable and may be set aside, inuring to the benefit of all.

"A merchant may now sell with confidence to the consumer, without fear that some other creditor, by sharp practice, may get an advantage over him, knowing that he will be placed upon an equality with every other creditor, and that his rights will be fully protected. In this way, if in none other, the Federal Bankruptcy law is working out a result which is of inestimable value to the merchant and business man as a class.

"It is very difficult at this stage for you to say whether or not the bankruptcy law has resulted in a reduction of your losses. It might naturally be expected

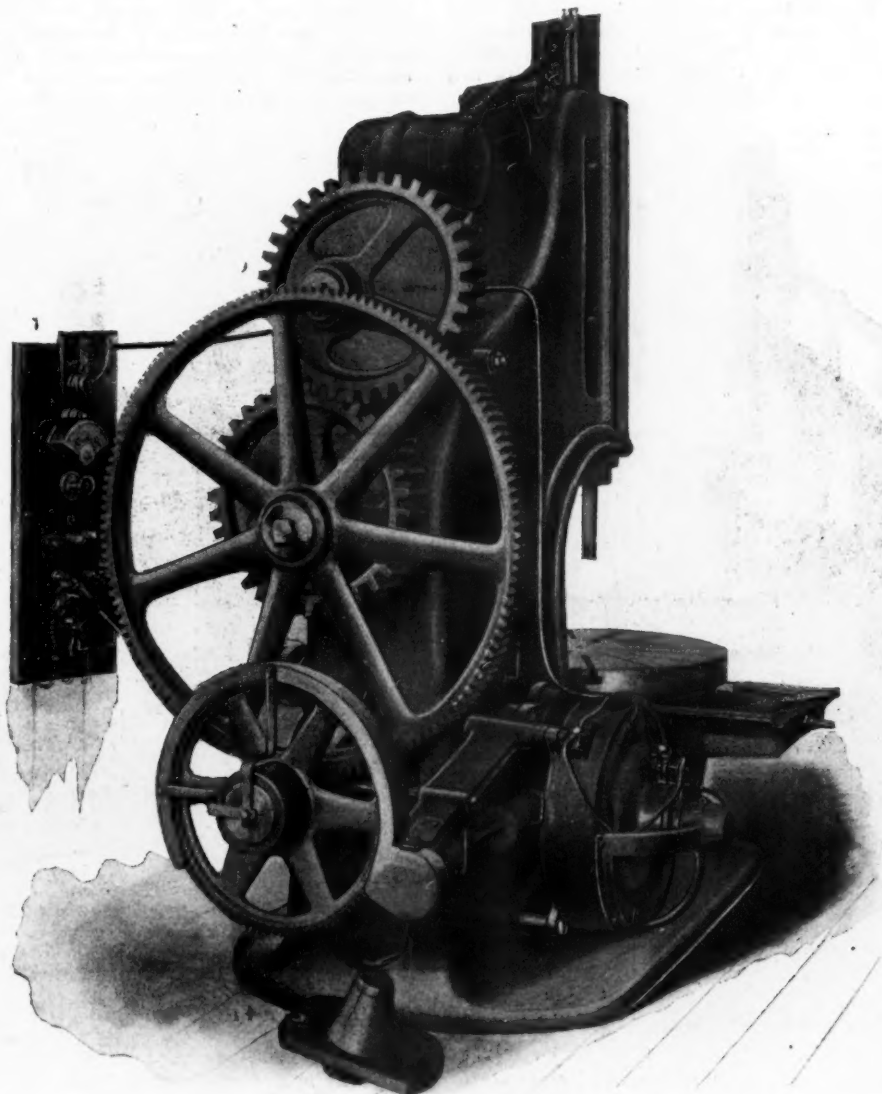


Fig 39 — Putnam Slotter with Motor on Base

### THE MOST PERFECT MACHINE SHOP.

having legal advisers in nearly every town in which credit was given, were first on the ground prior to the passage of the present law and those wholesalers with less capital and poorer facilities for watching their interest usually received their first notice of the insolvency of the debtor through the legal proceedings instituted by these big concerns. The result was that practically all the assets went to the first comer and the smaller creditor took what was left, which frequently was nothing at all. Under the present law priority under the institution of attachment or other proceedings can no longer work to the advantage of any one, but all are placed on an equality.

"Prior to the present statute under many of the State laws a merchant might make an assignment with preferred creditors, who, as a rule, were none other than relatives, or friends, such preferences ultimately accruing to the advantage of the insolvent. No such evil can result under the present law, for all creditors are treated

that they would have largely increased, owing to the old debts being discharged. In this connection it is interesting to hear what the representatives of some of our largest houses have to say on this subject. The credit man for one of the largest importing houses in the city of New York, doing many millions of dollars' worth of business annually, told me, when in that city a month ago, that, notwithstanding the existence of the bankruptcy law, whether a coincidence or not, with the great magnitude of his business, the total loss for his firm during the year was the insignificant sum of \$20 or \$30. Another distinguished credit man, from a different portion of the Union, said that his losses during the past year were much less than for many years before; and that the merchants have confidence that they can go ahead without fear that some other creditor, by shrewd practice, may get the best of them. Still another says, 'we are in favor of the law, because the results during the past year have been satisfactory, the dividends on suspended ac-

counts being nearly double what they have been in years past.' Still another says that the losses during the past year have been largely decreased, from what cause he cannot say. These are expressions from native business men who know whereof they speak.

"I earnestly urge business men to have their representatives present at all creditors' meetings of bankrupts. The operation of the law has demonstrated the wisdom of this suggestion. Although the bankrupt's schedule may show no assets a skillful examination, which is of incalculable value to the creditor, may disclose some concealed or transferred property which should properly go into the estate of the bankrupt for the payment of dividends. You may be represented at a number of such meetings and no assets be discovered, and yet at another meeting sufficient property may be disclosed to amply compensate for all expenses previously incurred for this purpose. If every bankrupt feels assured that he is to undergo a severe examination as to the disposition of his estate he is not as likely to schedule no assets, and the moral effect will be of incalculable benefit. The fact that as a rule when no assets are scheduled no trustee is appointed and no creditors appear

being prepared for a new plant for turning out work of this kind, which will probably be located in the Monongahela Valley, although the exact site has not yet been selected.

**New Steel Plant at Canal Dover, Ohio.**—The rumor about a new steel plant at Canal Dover, Ohio, grew out of the possibility discussed at a recent meeting between some of the iron men around Canal Dover. It was suggested that it would be a good plan to buy Dover Furnace and attach a steel plant to it, the intention being to get subscriptions to the capital stock from the sheet mill owners of that district, which would include Canal Dover, Dennison, Cambridge, New Philadelphia, Dresden and Coshocton, making a total of 36 mills. It would require at least 100,000 tons of slabs and sheet bars to keep this number of mills supplied during the year. The output of the Dover furnace is not over 70,000 tons of Bessemer pig iron per annum, and allowing loss in converting, there would be a considerable shortage of raw material. The proposed new plant would be dependent upon the lake carriers for ore, and it is understood that the national Steel Company own 20 of the lake vessels.

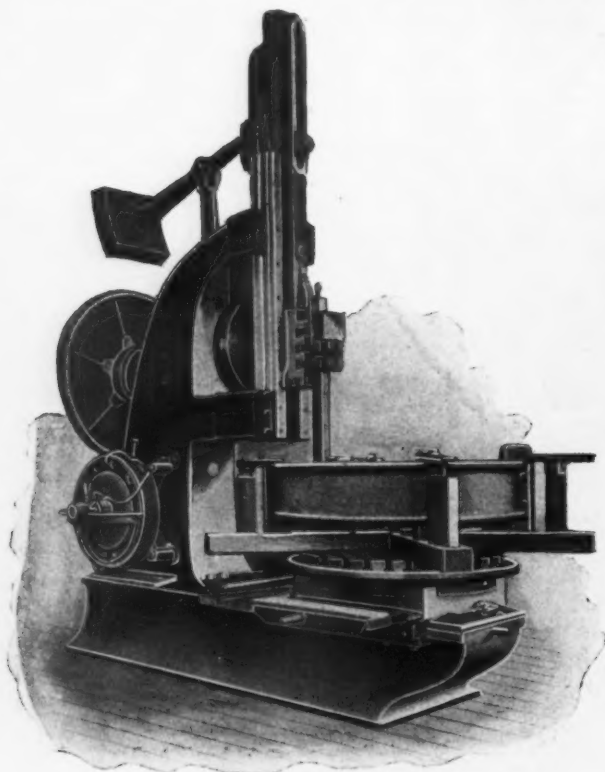


Fig. 40 — Bement, Miles & Co.'s Slotter with Motor at Side.

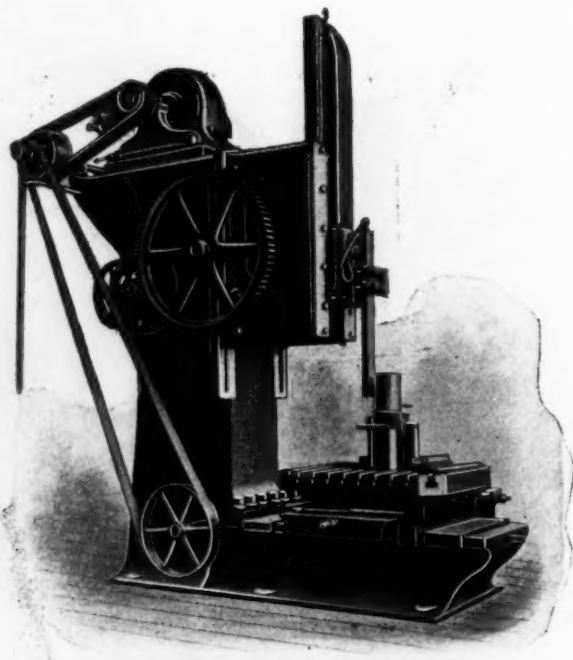


Fig. 41. — Bement, Miles & Co.'s Slotter with Motor on Top.

#### THE MOST PERFECT MACHINE SHOP.

to examine the bankrupt is an inducement to false statement by the dishonest debtor, which should not be tolerated."

W. L. C.

**New Union Station at Pittsburgh.**—Last week the Pennsylvania Railroad concluded the purchase of the last piece of ground necessary for the building of the new Union Station in Pittsburgh, which has been talked of for so many years. On Monday active work was commenced by the razing to the ground of the old Panhandle round house. Plans are also under way for the elevation of the tracks of the Pittsburgh, Fort Wayne & Chicago Railroad. It is expected that at least \$10,000,000 will be spent in the building of the new station, approaches and the track elevations through Allegheny. The present offices in the old Union Station have been moved to the Mellon Building, on the opposite side of Liberty avenue.

**The McClintic-Marshall Construction Company.**—H. H. McClintic, formerly vice-president and general manager of the Shiffler Bridge Company of Pittsburgh, and Chas. D. Marshall, formerly secretary and engineer of the same company, resigned their positions on February 1, and have organized the McClintic-Marshall Construction Company, with headquarters in the Park Building, Pittsburgh. The new concern will do a general line of iron and steel construction of all kinds. Plans are

The only native ore is black band, and the mine south of Canal Dover has been abandoned for several years. It was only recently that the rails connecting it with the Cleveland & Mariette Railroad were torn up and sold. If anything was to be done in the matter, it would require a new furnace of modern design, and it is reasonably certain that the Penn Iron & Coal Company would want a large price for their present furnace, and counting the cost of a new stack, and an up to date slab and sheet bar mill, the required investment would be over \$1,000,000. It is not likely that the proposed plant, which probably has never been seriously regarded by the sheet mills mentioned, will be built.

The Corporation Trust Company of Canada have been organized and incorporated under a charter of the Dominion Government, with a capital of \$100,000, for the purpose of representing companies incorporated in New Jersey. The new company are identified with the Corporation Trust Company of New Jersey. Offices have been established in Montreal.

A test was made at the Indian Head Proving Grounds last week of an armor plate, representing 442 tons of the turret armor of the battle ship "Alabama." The plate was 14 inches thick, and was fired at by a 10-inch gun. The first shot penetrated 4½ inches and the second shot 10 inches, and both shells were smashed. The plate was accepted.



## The Talbot Continuous Open Hearth Steel Process.

Since September of last year there has been in operation at the Pencoyd Iron Works of A. & P. Roberts Company the continuous basic open hearth steel process invented and developed by Benjamin Talbot, who is widely known as a leading authority in this branch of steel making. It will be recalled that some years since Mr. Talbot carried through a series of highly interesting experiments in the desiliconizing of pig iron at Chattanooga, Tenn., and studied closely the problem, then unsolved, of producing steel from Southern pig iron.

His present continuous process, which is bringing steel makers from different parts of the United States to Pencoyd, is the development along new and broader lines of the principles which germinated in the earlier work referred to.

We believe that from a technical and economic point of view Mr. Talbot's continuous process is of the very highest importance and that it is destined to accelerate the movement toward the ascendancy of the open hearth over the Bessemer process. From an economic point of view the Bessemer process suffers from the fact that the operation entails a heavy waste of iron, which is oxidized during the blow—a waste which is particularly telling when, as now, the cost of metal is high. The Bessemer process has had the advantage of a low cost of manipulation through the fact that the equipment is utilized steadily through the intensity of the operation. The open hearth as now handled has been placed in a much better position through the introduction of labor saving devices in charging, &c., but it is still relatively slow. The introduction of the basic lining has given it a wider sphere of usefulness, because it has enabled the steel producer to employ off grade and, therefore, cheaper irons, and because it has released it from restrictions as to the quality of scrap. It is admitted that the lower cost of raw materials has placed the basic open hearth furnace practically on an equality as to cost with the acid Bessemer converter—the basic Bessemer converter being practically out of the question until now, in the United States, as an effective competitor.

Mr. Talbot's continuous process holds out such promises as to reduction of cost and as to flexibility in capacity to deal with a wide range of raw materials that it will cause an emphatic shifting toward the open hearth process, as compared with Bessemerizing, for soft steels. In this estimate of future developments no credit is taken for the admittedly better quality of basic open hearth steel over acid Bessemer steel for many purposes, nor is any account taken of the probability that the product of the continuous process is markedly superior to the steel made in the basic open hearth furnace in the ordinary way.

In a sense, the plant in which the Talbot process is being carried out at Pencoyd, Pa., is experimental, although it would be closer to the fact if it were designated as tentative, in the direction of what would probably be the equipment likely to bring out maximum efficiency. The furnace now installed takes a charge of 160,000 pounds. Mr. Talbot expresses the conviction, from the results of actual experience with it of months of commercial operation, that a furnace with a capacity of 240,000 to 300,000 pounds would be easily handled and yield a cheaper product, due to increased output.

### The Present Plant.

The plant consists of an 80 net ton open hearth furnace of the Wellman tilting type, modified in some important respects by Mr. Talbot to meet his special requirements. It has a hearth 30 x 10 feet, the gas being admitted through a central flue, flanked on each side by an air port, the combustion taking place in the

furnace proper. The flue cages are mounted on wheels, from which they are lifted by hydraulic cylinders to bring them into position to register with the furnace ports. When the furnace is to be tilted, the gas is cut off, the cage is let down upon the wheels and withdrawn from the furnace, on its track.

The furnace is so arranged that it can be tilted either way. On the charging side there are three doors, one of which is fitted with a spout or runner from which slag may be discharged. The other doors are fixed so as to be able to receive a runner as a means for discharging liquid metal into the furnace. On the tapping side, the tap is arranged so that the metal is taken at a level 3 to 4 inches below the cinder.

Originally the melting plant consisted of one 120-inch cupola, which discharges into a 15-ton ladle carried by an overhead electric traveling crane. A second cupola is being put in, so that the melting capacity is increased to 40 tons per hour. Room is provided for a third.

With only one cupola it has been impossible to carry on the continuous process steadily with liquid metal, because it was necessary to drop the bottom of the cupola on Saturday night. Sunday and a part of Monday were consumed in repairs and relining, so that molten metal has not thus far been available for the open hearth furnace until Tuesday morning. During that interval it has been necessary to charge the furnace with cold stock. With the second cupola, now building, in commission, the operation can be carried through continuously week in, week out. The furnace is charged on Sunday and not completely emptied until the following Saturday evening.

### The Process.

Briefly, the process consists in adding to an initial bath of steel, charges of molten pig iron, or partly purified iron, and charges of mill cinder or iron to enrich the slag as oxidized, and withdrawing an aliquot part of the steel and of slag whose oxidizing capacity has been exhausted.

The process depends upon the desiliconizing, decarbonizing and dephosphorizing action of a highly basic, ferruginous slag upon molten impure metal. This reaction takes place during the passage of the molten metal through the liquid enriched basic slag, and also through the contact of the impure metal with the supernatant slag, this being promoted through the fact that the incoming impure metal, being lighter, floats upon the finished, purified metal, which constitutes the great mass of the bath.

### The Operation.

The first step is the preparation of an initial bath, the procedure being the same as that carried on in the ordinary practice. Usually this bath is equal to about 60 to 75 per cent. of the capacity of the furnace. A slag covering is created by the additions of mill cinder, iron ore and limestone. A dam of basic material is built across the slag runner, the furnace is slightly tilted so as to be higher at the charging side, the iron runner is placed into position at the second charging door, by the charging machine, and then liquid metal is poured into the furnace, the gas having been cut off. In a brief time a very active reaction takes place, the boil being very marked. It is accompanied with the discharge of a very large volume of carbonic oxide gas, which bursts from the doors and escapes through the flues into the checker work, which incidentally it helps to heat. After the boiling has subsided some of the slag, whose capacity to oxidize the metalloids of the bath has become exhausted, is discharged from the furnace by tilting it, the slag flowing into a car beneath the spout.

Then begins the work of again enriching the slag



and bringing it back to the requisite basic condition, which is accomplished by the additions of iron ore, mill cinder, limestone, and sometimes manganese ore, to take care of sulphur. Thus charges of molten impure metal alternate with periods of enriching the slag and tapping exhausted cinder until the capacity of the furnace has been reached.

Then a part of the steel is tapped, the quantity depending upon the usual charges handled in the casting pit of the plant. The steel is tapped from a point several inches below the slag level, so that clean metal alone is poured out by the tilting of the furnace. This does away with all the mess which usually attends, to a greater or lesser degree, the operation of tapping the whole charge from a furnace. It minimizes, too, the danger of reintroducing phosphorus into the steel, from the cinder, during the recarburizing. The recarburizing is done in the ladle in the usual manner. The steel remaining in the furnace constitutes the initial bath for the next series of operations.

It may be useful to follow

#### A Typical Charge

through the operation, by way of illustration. The bath consisted of 67,000 pounds of metal, the analysis of which showed the following:

	Per cent.
Carbon.....	0.07
Sulphur.....	0.046
Phosphorus.....	0.038
Manganese.....	0.17

The tapping slag, with which the bath was covered, contained:

	Per cent.
Iron.....	10.29
Silica.....	15.39
Phosphoric acid.....	8.68
Manganese oxide.....	7.58

At 9.50 a.m. there was added 3600 pounds of mill scale and 300 pounds of ore, which enriched the slag to 23.14 per cent. of iron, the silica being down to 9.70 per cent. and the phosphoric acid to 6.30 per cent.

At 9.55 a.m. there was charged 15,700 pounds of liquid cupola metal, the analysis of which was: Carbon, 3.5620; sulphur, 0.04120; phosphorus, 0.796 per cent.; manganese, 1.34 per cent., and silicon, 0.52 per cent. This made the calculated carbon contents of the mixture in the bath 0.61 per cent. and the phosphorus contents 0.182 per cent.

The reaction took place between 9.55 a.m. and 10.05 a.m. At the latter time an analysis of the metal showed:

	Per cent.
Carbon.....	0.48
Sulphur.....	0.048
Phosphorus.....	0.077
Manganese.....	0.17

As the result of the reaction the iron contents of the slag were brought down to 15.77 per cent., the silicon rising to 12.96 per cent., and the phosphoric acid to 9.44 per cent.

Then a part of the slag was tapped, and at 10.30 a.m. 2700 pounds of cinder and 1300 pounds of limestone were added, which made the slag show 14 per cent. of iron, 15.25 per cent. of silica, and 10.01 per cent. of phosphoric acid.

An addition followed of 14,000 pounds of cupola metal, carrying 3.60 per cent. of carbon, 0.036 per cent. of sulphur, 0.772 per cent. of phosphorus, 1.36 per cent. of manganese, and 0.55 per cent. of silicon, resulting in a calculated contents of the mixture of 0.75 per cent. of carbon and 0.158 per cent. of phosphorus.

The bath, now having a weight of 96,700 pounds, at this time contained metal with:

	Per cent.
Carbon.....	0.73
Sulphur.....	0.0047
Phosphorus.....	0.102
Manganese.....	0.18

The slag carried 18.91 per cent. of iron, 14.85 per cent. of silica, and 9.42 per cent. of phosphoric acid.

After 10.35 a.m. there was an addition of 600 pounds of manganese ore, 2500 pounds of cinder, and 2600 pounds of limestone, the boiling down continuing until

1.25 p.m. At that time the analysis of the metal of the bath was:

	Per cent.
Carbon.....	0.08
Sulphur.....	0.06
Phosphorus.....	0.017
Manganese.....	0.18

The iron in the slag was down to 18.54 per cent.

Then followed an addition of 4500 pounds of metal, and at 1.40 p.m. the analysis of the metal was:

	Per cent.
Carbon.....	0.10
Sulphur.....	0.047
Phosphorus.....	0.021
Manganese.....	0.21

At 1.45 p.m. the slag contained 15.52 per cent. of iron, 12.97 per cent. of silica, 6.58 per cent. of phosphoric acid, and 10.82 per cent. of manganese oxide.

The final heat of the steel tapped at 1.45 p.m. contained by ladle test:

	Per cent.
Carbon.....	0.14
Sulphur.....	0.036
Phosphorus.....	0.028
Manganese.....	0.54

The quantity of steel tapped was 41,680 pounds.

An excellent example of

#### The Rapid Oxidizing Effect

is furnished by a charge, in which the additions consisted of molten metal relatively high in silicon.

The initial bath contained 0.06 carbon, 0.046 sulphur, 0.021 phosphorus, 0.09 manganese, and 0.009 silicon, the slag containing 25.14 per cent. of iron, 9.50 per cent. of silica, and 6.85 per cent. of phosphoric acid. A charge was poured in of 15,100 pounds of iron with 1.22 per cent. of silicon, 0.066 per cent. of sulphur, 0.668 per cent. of phosphorus, and 0.36 per cent. of manganese. The analysis of a sample of the bath taken ten minutes later showed: Silicon, 0.014 per cent.; carbon, 0.33 per cent.; sulphur, 0.054 per cent.; phosphorus, 0.047 per cent., and manganese, 0.13 per cent.

Forty-five minutes later analysis of the metal showed: Carbon, 0.08 per cent.; sulphur, 0.058 per cent.; phosphorus, 0.023 per cent.; manganese, 0.09 per cent., and silicon, 0.014 per cent.

Five minutes later an addition was made of 16,900 pounds of molten metal, whose silicon contents were 1.34 per cent., with sulphur, 0.58 per cent.; phosphorus, 0.68 per cent., and manganese, 0.36 per cent. A sample of the bath taken ten minutes later showed that the silicon contents had declined to 0.02 per cent., the carbon being 0.39 per cent.; the sulphur, 0.056 per cent.; the phosphorus, 0.061 per cent., and the manganese, 0.09 per cent.

Another heat may be cited as illustrating

#### The Quickness of the Reaction

when small additions are made, so that moderate quantities of steel may be drawn at frequent intervals. The bath of heat No. 10,305, containing 104,000 pounds of metal, was hot enough to tap at 9.45 a.m. At that time the bath analyzed:

	Per cent.
Carbon.....	0.06
Silicon.....	0.012
Sulphur.....	0.051
Phosphorus.....	0.022
Manganese.....	0.06

The slag at this time contained 22.42 per cent. of metallic iron, 8.80 per cent. of silica, and 10.17 per cent. of phosphoric acid.

At 9.54 a.m. there had been added 9300 pounds, or somewhat less than 10 per cent., of cupola metal, which analyzed 3.80 carbon, 0.47 silicon, 0.065 sulphur, 0.992 phosphorus, and 0.36 manganese. By calculation the mixture should contain 0.37 carbon and 0.102 phosphorus.

After adding 800 pounds of cinder to the charge the bath was hot enough to tap, at 9.57 a.m. At that time the metal in the bath analyzed as follows:

	Per cent.
Carbon.....	0.13
Silicon.....	0.010
Sulphur.....	0.048
Phosphorus.....	0.068
Manganese.....	0.10

At this time the slag was down to 12.48 per cent. of iron, with 11.41 per cent. of silica and 13.08 per cent. of phosphoric acid.

At 10.20 a.m. the heat was stopped, the steel in the ladle containing as follows:

	Per cent.
Carbon.....	0.14
Sulphur.....	0.056
Phosphorus.....	0.046
Manganese.....	0.36

#### Uniformity of Temperature.

The principal consideration, that of attaining speed in the reactions, and thus increasing output per unit of plant and reducing cost, lies in the maintenance of the adequate temperatures. The open hearth furnace is not an economical or efficient apparatus for heating stock, and its life is adversely affected by sudden or large fluctuations of heat. In the ordinary practice a plotting of the temperature variations would lead to a diagram resembling a series of saw teeth in form. Any method which tones down the fluctuations must necessarily have a favorable influence.

The existence of a large body of metal in the bath and the introduction of the fresh charges in the liquid form are conducive to that end and tend to accelerate the operations. In the ordinary practice a long time is consumed in heating the scrap, its oxidation many times proceeding further than the subsequent reactions call for.

#### The Wear of the Furnace.

At the outstart the fear was entertained that the wear on the furnace might prove a serious obstacle and that notably in the region of the slag zone the corrosion might be frequent, extensive and troublesome. The tapping of a part of the bath and the subsequent additions of hot metal cause a fluctuation in the level of the bath of about 4 inches, and this is what may be termed the critical zone. Experience during the last five months has shown that these fears are unfounded. The practice is to repair the lining, at the time immediately following the tapping of a charge of steel, by throwing in a mixture of crude dolomite and 5 per cent. of rosin. The presence of the bath of metal prevents the waste of material which takes place in patching the emptied ordinary open hearth furnace by the rolling down of the material from the sides. Where repairs are most needed is at the jambs of the doors on the charging side.

It may be hardly necessary to state that Mr. Talbot's plans look to

#### Charging Liquid Metal from the Blast Furnace.

At Pencoyd, where pig iron is not manufactured, the iron must be remelted in the cupolas. The practice at Pencoyd, of course, establishes the principle of the great advantages of the continuous method, with liquid metal, whether it be taken direct, or remelted. While under some circumstances it may prove feasible to carry the metal to a mixer and draw from the latter, as requirements may dictate, it is probable that in the majority of cases it will prove more satisfactory to discharge the molten pig metal into a storage furnace, in which the metal is not alone mixed thoroughly but is also partially purified, thus relieving the steel furnace to some extent. Mr. Talbot has been recently granted patents covering this combination of a reservoir furnace with the continuous open hearth process.

#### Results Obtained.

The continuous process has now been in steady operation, furnishing its part of the steel supply to the Pencoyd mill, since September last. During that time the furnace has put through about 7000 tons of steel. There have been made weekly from 28 heats as an average to 28 heats as a maximum. We have already explained that the necessity for weekly repairs to the cupolas has caused a return to cold stock in the early days of the week. It is believed that when molten metal is available all the time the number of heats will be carried

up to 32 to 34 heats weekly of 20 tons each. This compares with an average of 12 to 13 heats per week in the usual practice, in which each charge is finished and poured, starting with cold stock in tilting open hearth furnaces of 50 tons capacity. In the case of open hearth furnaces into which purified metal is poured from storage furnaces charged with direct pig from the blast furnace, mixed with 50 per cent. of previously heated scrap, the number of heats runs up to 16 to 17 per week.

By doubling the size of the steel bath and working the same percentage of liquid metal, the present output will be doubled in the same time. It is this fact which opens up such great possibilities for this process, when compared with the intermittent method now in general use.

One advantage of some moment in the case of the continuous process is that the slag poured off is lower in iron than that of furnaces operated in this manner. In the latter it carries from 15 to 16 per cent. of iron, in the former about 12 per cent.

In spite of its great size, the furnace worked by the Talbot process does not suffer from the drawbacks which attend the operation of large units in ordinary practice, while it retains the advantages due to a lowering of labor cost.

In the ordinary open hearth practice the whole contents of the furnace are emptied into the ladle, which must be increased in size as the capacity of the furnace grows. Handling such masses of steel is no child's play, and increases the dangers incident particularly to the weakest point of the casting apparatus—the nozzle. The Talbot continuous process can adapt its tapping charges to the equipment of the steel plant, keeping them within safer and handier limits. And, what is more, the flow of steel from the melting furnaces can adjust itself to the convenience of the mill much better. There is not that sudden rush of steel to the stripper, with the long waits during which the molds suffer and the metal becomes unnecessarily cold. The steel reaches the pit heating furnaces in better condition and with greater regularity.

Particularly when there intervenes between the blast furnace and the open hearth furnace a reservoir furnace, in which partial purification takes place, it is possible to use iron with a very wide range of composition, thus making it possible to use off grade, and therefore cheaper, irons, although the same wide variation in the pig metal can be successfully handled by using a larger steel bath to dissolve it in, so that the chief utility of a reservoir furnace would be for storage.

The point has been raised that the Talbot continuous process causes a departure from what many consider the chief function of the basic open hearth furnace as a scavenger of scrap material. In many localities the *raison d'être* of the open hearth furnace is its capacity to utilize and convert into merchantable product cheap local old metal. Mr. Talbot holds that the open hearth furnace is a very expensive apparatus to perform the function of melting scrap and that in the blast furnace the operation can be carried through very much more cheaply.

**A Charcoal Furnace Record.**—The Pioneer Furnace of the Cleveland-Cliffs Iron Company, located at Gladstone, Mich., under the management of Austin Farrell, was blown in October 2, 1899, after general repairs made necessary by a continuous blast of 40 months. The output for the month of November, 1899, averaged 122.4 tons daily; the average fuel consumption was 1660 pounds per ton of iron (2265 pounds), and the ore mixture through the furnace yielded 55 per cent. of iron. During the month there was produced 1438 tons of Scotch, No. 1 soft and No. 1 special—a trifle over 39 per cent. of the total output of pig iron. The remaining comprised the ordinary grades of charcoal iron, ranging from No. 2 to No. 6. The furnace is 60 x 12 feet, and equipped with two 16 x 70 Cowper-Roberts fire brick stoves. The output of wood alcohol and gray acetate of lime from the chemical plant, running in connection with the furnace and also under the management of Mr. Farrell, was the largest in the history of the works.



## The Schumacher & Boye Electrically Driven Engine Lathe.

An electrically driven 28-inch engine lathe is being built by Schumacher & Boye of Cincinnati, Ohio. The motor is of the Bullock type, making from 40 to 250 revolutions per minute. It is mounted directly on the spindle, which constitutes the armature shaft. No change whatever was made in the driving gear, the motor merely occupying the place of the step cone, as shown in the detail views, Fig. 2. On the spindle, which is hollow, is placed a spindle upon which the armature is built up. The four poles, made of laminated plates, are cast direct upon the steel yoke of the motor. By means of a new system of variable speed control the motor is given a greater range of speed, without loss of torque, than is

## Canadian News.

### Another Power Concession at Niagara Falls.

TORONTO, February 3, 1900.—At last the Ontario Power Company of Niagara Falls have succeeded in getting power rights on the Canadian side of Niagara Falls. This company were incorporated by the Dominion Parliament in 1887 as the Canadian Power Company, by which name they were known until last year, when their name was changed to their present form in order to make the distinction between their style and that of the Canadian Niagara Power Company more marked. For years the latter enjoyed rights that were in the way of the Ontario Power Company's schemes, and efforts were made both at Toronto and Ottawa to secure legislation to enable the latter to go on with their plans. Upward of

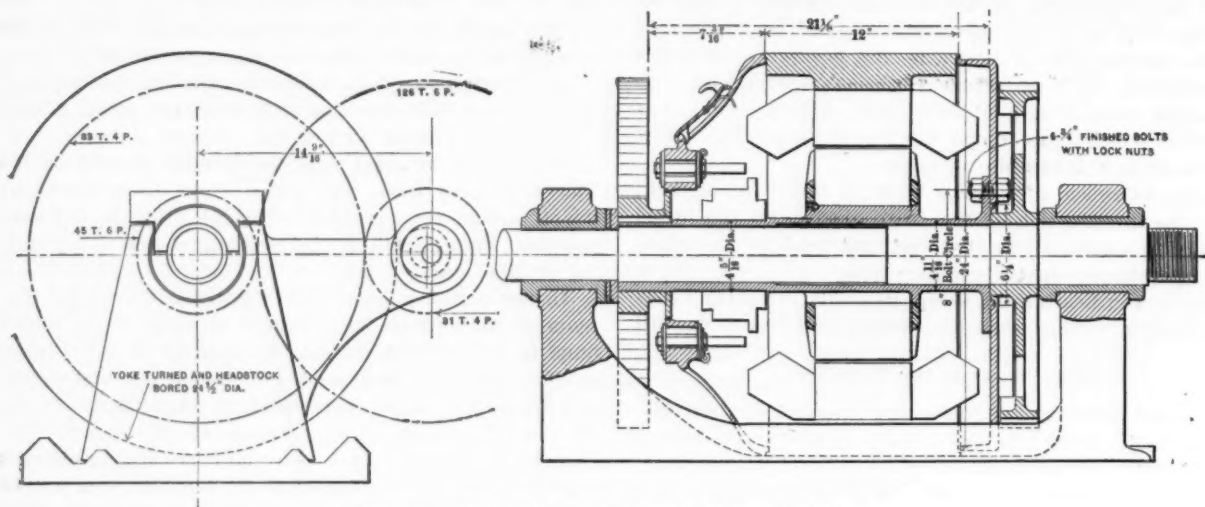
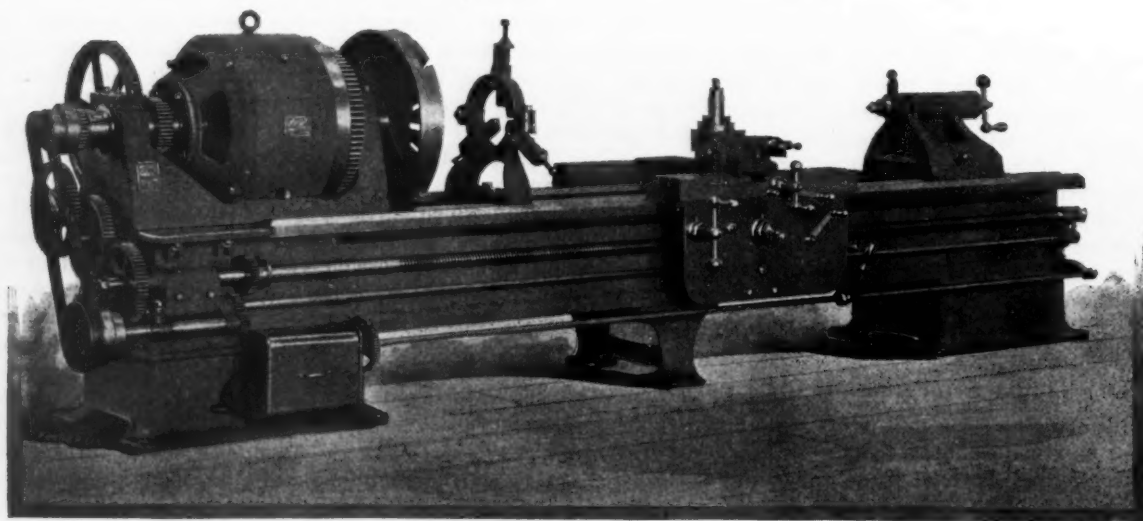


Fig 2.—Details of Head Stock with Motor on Spindle.



THE SCHUMACHER & BOYE ELECTRICALLY DRIVEN ENGINE LATHE

ordinarily accomplished by the step pulley, there being 16 speeds in each direction, including the back gear. The controller is placed on the side of the lathe directly under the head stock, and is operated by a splined shaft extending along the bed. This shaft is actuated by a handle carried by the apron on the carriage. By referring to the half-tone engraving it will be seen that this handle is at the lower right hand corner of the apron. Since this engraving was made an improvement has been introduced which adds much to the convenient operation of the tool. The handle controlling the splined shaft has been placed at the upper right hand corner of the apron, and is always within easy reach of the operator. When the handle is in the central or neutral position the lathe is at rest. Moving it toward the left starts the lathe at its minimum speed, which increases the further the handle is moved until the maximum is reached. Moving the handle from its neutral position toward the right drives the spindle backward, the speed increasing with the movement, as in the forward drive. All movements of the lathe are by this means placed under quick and perfect control by a handle located in the best possible position.

a year ago, however, the Canadian Niagara Power Company's obstruction ceased, as, just as their franchise was about to expire unimproved, they consented to a new arrangement which ended their monopoly, and which still left them a very large concession. That, however, was not sufficient to enable the Ontario Power Company of Niagara Falls to go on. They had yet to get the necessary rights to develop through Queen Victoria Niagara Falls Park. These have been the object of oft renewed negotiations. It seemed that the company had to satisfy the Park Commissioners that they had the requisite capital to complete the developments planned. Evidently they have been able to do this. General Geo. S. Field of Buffalo lately came forward as the representative of a group of English and American capitalists to assure the Commissioners on that point. At all events an understanding has been arrived at here, and an agreement containing the terms and specifications has been outlined and will shortly be signed. Its ratification by the Ontario Government is a matter of form, as the Park Commissioners' recommendations are sure to be in line with public policy. What the terms are has not been announced, but it is safe to assume that they do not dif-



fer much, if at all, from those contained in the agreement with the Canadian Niagara Power Company. That corporation pays a fixed rental of \$15,000 per annum, for which it is allowed to develop 10,000 horse-power. If it develops more the scale is as follows: \$1 per annum per horse-power for the second 10,000 horse-power, 75 cents for the third and 50 cents for all in excess of the third.

It is stated that the Field syndicate is negotiating with several large manufacturing concerns to take sites on land acquired by the company and to enter into contracts for power. The water is to be brought from Welland River, at a point a short distance from its mouth. This stream flows into the Niagara above the falls, but its waters are forced back up its channel by the greater volume and swifter current of the Niagara. That is, the Niagara would be tapped by a canal leading from the Welland at a point near the junction of the streams. By such a canal the company propose to develop the power. There will be two heads—one at the bluff overlooking the

Refining Company, now well advanced toward completion.

#### Trade Items.

John Bertram & Sons, Dundas, Ontario, have completed a pulp machine for the new pulp mill at Hawkesbury, Ontario. It weighs 120 tons.

E. A. C. Pew, a Toronto promoter, with T. E. Hinckley, New York, E. M. Bletz and J. H. Hardbeck, Pittsburgh, waited on Premier Laurier on January 31, concerning the duty and bounties on iron and steel, representing that if their wishes were met they would erect a large iron furnace at Welland, to be supplied with ore from the West Hull mines.

The Globe File Company of Port Hope have bought out the file manufacturing department of the Ottawa Saw Company, and will move the machinery and stock to port Hope.

The headquarters of the Mattawan Iron Company,

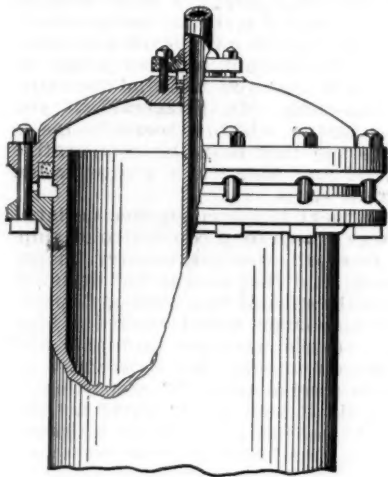


Fig. 1.—Sectional Elevation, Showing Sealing of a Pipe at the End.

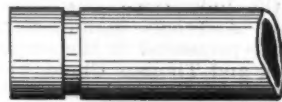


Fig. 2.—Pipe Formed with Groove to Receive Split Packing Ring.

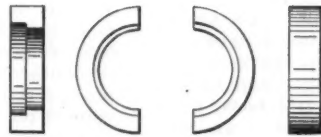


Fig. 3. Fig. 4. Fig. 5. Split Packing Ring.

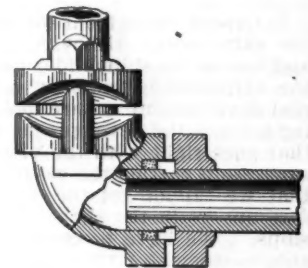


Fig. 6.—Elbow Joint.

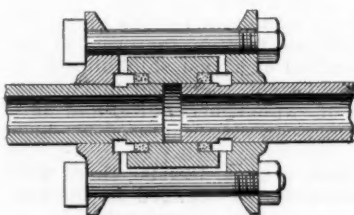


Fig. 7.—Pipes Coupled End to End.

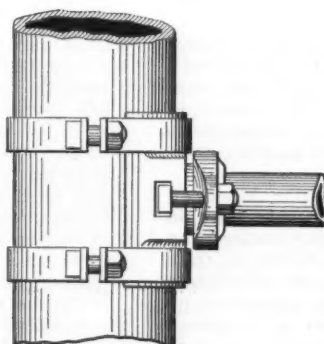


Fig. 8.—Tapping One Pipe Into Another Without Disturbing the Latter.

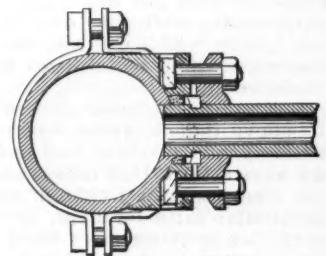


Fig. 9.—Section of Fig. 8.

#### THE LINICH & KARLSON PIPE JOINT AND CONNECTION.

Park, where 30,000 to 60,000 horse-power can be generated; the other at the brink of the river bank, where 125,000 horse-power more can be developed.

#### Nickel Company Increase Their Capital.

The Nickel-Copper Company of Hamilton, recently incorporated, have given notice of application to the Ontario Legislature for power to increase their capital from the present limit of \$1,000,000 to \$10,000,000. They also ask power to amalgamate with, or acquire shares in, other companies having similar objects. Further, they ask to be empowered to construct railway switches, sidings and lines for connecting their works with a railway. As stated in a former letter some of the persons in this company are among the provisional directors of the Nickel-Steel Company of Canada, and it is reported that the new powers sought are with a view to the amalgamation of the two. The one having a Dominion charter and the other having a Provincial, the two combined would be able to exercise quite large powers. It is also understood that it is the purpose of the Nickel-Copper Company of Hamilton to absorb the works of the Hoeffner

who are to erect smelters at Fort William, will be removed from Kingston to Toronto.

C. A. C. J.

#### The Linich & Karlson Pipe Joint and Connection.

The accompanying drawings represent a novel pipe joint and connection, which by virtue of its simplicity of construction and easy application appeals to users in cases where a pipe joint is required to withstand heavy pressures, and which can easily be tightened or taken apart without cutting the piping or disturbing the adjacent connections. In applying this joint, a groove is cut in the ends of the pipes to be coupled, a pair of split rings are put into the grooves, packing rings are placed next to the inner faces of the split rings, and flanges with bolts tighten the joint in place. No litharge or solder is required; no pipe tongs or wrenches are used, and the arduous labor of pipe fitting is dispensed with.

Referring to the drawings, Fig 1 shows the sealing of the end of a pipe or cylinders, as would be used for any

type of pressure tank. Fig. 6 represents an elbow; a tee would, of course, have another branch. Fig. 7 is a straightway coupling. Figs 8 and 9 respectively show a method of tapping a pipe main without disturbing it. Figs. 2 to 5 show details. This pipe joint is being introduced by De Bonneville & Johnston, 11 Broadway, New York.

### The Payne Ship Subsidy Bill.

WASHINGTON, D. C., February 6, 1900.—The House Committee on the Merchant Marine and Fisheries has concluded an extended series of hearings on the so-called Payne Ship Subsidy bill and has taken the measure up for consideration with a view to a favorable report. Chairman Grosvenor of the committee expects that a bill can be agreed upon within the next fortnight, but it is possible that the report may be delayed a few days in order to enable a canvass to be made of the House to determine the strength of the measure in its completed form.

The interests of the American shipbuilders, ship owners and indirectly of American manufacturers of iron and steel have been represented in the committee hearings by Lewis Nixon and Thomas Clyde, and Theodore C. Search, president of the National Association of Manufacturers. Mr. Nixon, speaking of the advantages that would be derived from the bill by the American shipbuilder, said:

#### Lewis Nixon's Testimony.

"I speak more from the point of the shipbuilder than the ship owner, although, of course, they go together, and unless the shipbuilder can get an increasing demand the shipbuilding industry must perish. However, the real development we are looking for from the shipbuilding point is the development of the American tramp, and that goes right with the views of this bill. The American tramp carries the cargo. I am convinced, however, that we cannot get the American tramp without the forerunners in the shape of large passenger and freight ships. We have to establish the lines and have them able to compete with existing lines, which lines are subsidized or encouraged by other governments. Take the question in Germany. It was the wonderful force of character and industry of the German Emperor that has built the German lines to-day, and to-day in the harbor of New York the fastest and finest ships in the world are those built in Germany by German workmen entirely.

"They are encouraging their shipping interests there, and every discrimination is made in favor of German built ships, because you can almost take it as an axiom that shipbuilding and ship owning will go together, and any policy which destroys the shipbuilding to build up the ship owning will destroy the commerce and business of the country.

"From the point of view of the shipbuilder, however, I believe that 30 years will put us in the lead both in building and owning; but to-day you must understand we have a tariff that makes our steel cost far more than the steel costs in England, and we have an absolutely prohibitive tariff on labor. No matter how much a shipyard, for instance, may need labor, under the contract labor law we cannot bring in any from abroad, and, as far as that is concerned, I do not want to. Those conditions exist. In England steel can be bought for something like \$35 a ton, and here it may be that we have to pay \$60 a ton, and in the matter of labor they only pay 70 per cent. of what we have to pay.

"There is nothing that seems to be so pertinent to the matter as the question raised here as to the cost of war vessels. Sixteen years ago we started to build a new navy, regardless of the cost, and you won't build up a merchant marine unless you do the same thing. Both political parties have to combine in this matter and work together to accomplish it in the best way we can accomplish it. That is the way they built up the navy. In 16 years we have developed not only a navy, which, type by type, is as good as any other, but we have taken the same type of ships built abroad and whipped them in battle—whipped the best ships of that type. And the building up of the navy has developed the contributory industries, such as the manufacture of steel, so we are to-day getting to be the great steel making country.

"The question was raised whether we can build a man-of-war here cheaper than it can be built in Europe or in England. Practically speaking, taking the restrictions and requirements in the building of a man-of-war into consideration, we can build just about as cheap as they can build abroad. You will understand, however, that abroad, where England builds 1,400,000 tons of merchant ships, we are building about 50,000.

"Now when it comes to a question of a man-of-war, there are only a few yards in Europe and England that can turn out a first-class man-of-war. They are full, and the question of policy as to whether it would not

be a good idea to build some of the ships over here has also arisen. Foreign nations have been attracted to our military equipment, and its excellent showing in war has turned them in this direction; and another thing was that we could make quicker deliveries than they could abroad.

"The consequence is in an open competition we could now, under the same conditions of the market, meet the foreigner in building men-of-war; but until we can build somewhere near as many merchant ships as England builds we cannot compete. When a nation builds 30 ships to another nation's one ship it does not lie within the range of possibilities for the nation building one ship—which is the United States—to compete in the handling of material and men and many other things. One thing is the question of men being laid off. We cannot import men to do the work, and there are comparatively so few that we suffer thereby. It is hard to satisfy the demand for men to build ships in this country.

"With the development in the manufacture of bicycles, and automobiles, and such things, a great demand has been made upon the higher grade of mechanics in this country, so we are gradually now developing shipbuilders, and of course the amount of labor keeps up with the demand, as it will; but you will find the thing that will strike you especially, Mr. Fitzgerald, if you will read the report—a matter which it seems to me is of great importance—is the fact that the comparative cost of ships in England and America is greater when it comes to the low grade ships."

Mr. Clyde in his statement to the committee declared that the pending bill was drawn by a committee of shipbuilders and owners from all over the country, manufacturers and legislators, and that it was not designed to turn the lion's share of the subsidy into anybody's pockets. While owners of fast ships would receive a high subsidy per ship, such vessels were not profitable and would not be built in large numbers. Mr. Griscom, who, it had been stated would receive an undue proportion of the subsidy because of his 21-knot ships, would not duplicate them even should the bill pass, but had already caused plans to be drawn for 17-knot ships of large carrying capacity.

#### Mr. Search's Statement.

Mr. Search, speaking for the Association of Manufacturers, said:

"As my whole business career has been identified with manufacturing interests, and as upon this occasion I appear in behalf of the 1100 manufacturers embraced within the membership of the National Association of Manufacturers, of which I have the honor of being president, my interest in the shipping problem naturally tends toward the practical business phases of the question in its relation to the industries of the country.

"The creation of a great merchant marine under the American flag is of importance to manufacturers in two ways, as it means the creation of a vast shipbuilding industry, consuming iron and steel, tools and machinery, and employing an army of skilled mechanics, and as it affects the carriage of American manufactured products to foreign markets.

"In the year of the tenth census, 1889-90, there were 21 shipyards in the United States engaged in the construction of iron and steel vessels, representing an invested capital of \$33,900,000. They employed 10,767 workmen, to whom was paid \$6,579,000 in wages. These yards consumed material valued at \$6,637,000, and their aggregate product was valued at \$15,200,000. There were also 259 yards engaged in building wooden vessels, representing invested capital to the amount of \$8,928,000. The employees of these yards numbered 8173, and their wages for the year footed up \$4,645,000. The materials used in building wooden vessels cost \$6,582,000, and the value of the ships themselves was \$14,218,000.

"These two branches of the shipbuilding industry—the construction of iron, steel, and wooden vessels—represented, ten years ago, the employment of 18,940 workmen, whose wages amounted to \$11,224,000 for the year, and the value of the ships they built was \$29,424,000. With the dependent industries of ship repairing, mast and spar making, boat building, &c., the entire shipbuilding industry in 1900 represented an aggregate invested capital of \$53,393,074, the employment of 25,934 hands, the payment of \$16,000,000 in wages and a product valued at \$40,342,000.

"Although the tonnage output of American shipyards in 1890 was virtually the same in amount as in 1890, the invested capital, the number of employees, and the total of their wages are probably larger now than ten years ago. There has been a decline in the building of wooden ships, but this has been offset by the increase in steel construction; and the expansion of several of the larger yards, together with the establishment of several entirely new plants, probably more than compensated for any shrinkage of the capital invested in wooden shipyards.



"In the absence of any more definite figures the statistics of capital invested, hands employed, and wages paid in shipbuilding ten years ago afford an approximate estimate of what the same industry represents to-day.

"Thus we arrive at the conclusion that we are dealing, then, with an industry that involves directly upward of 25,000 employees and indirectly many times that number in the industries that supply all the materials, tools and machinery required in ship construction.

"These figures, of course, embrace the entire shipbuilding industry, while Congress is asked to consider only that portion of our shipping engaged in foreign trade, which figures as an exceedingly small part of our shipbuilding industry, less than 15 per cent in the last fiscal year, when the greatest output of ocean going tonnage was reached; but whatever tends to encourage the construction of seagoing steamships directly affects every yard upon the seaboard, where two-thirds of the total tonnage, ocean, coastwise, lake and river, is built.

"What the expansion of our shipbuilding industry to proportions that might fairly be expected would mean may be judged from a comparison between the United States and Great Britain. Our output of ocean steamships in 1898 was 16,382 tons, against 1,301,325 tons in Great Britain. The maximum capacity of our yards is estimated at about 100,000 tons per annum of ocean steamships, so that if even this limit were reached 13 times our present capacity would be required to reach the present output of Great Britain. We have long since passed far beyond Great Britain in the manufacture of iron and steel and everything that enters into the construction of ships, and I cannot conceive that any American to-day is willing to admit that in the building of the ships themselves we must concede to Great Britain an unapproachable supremacy. And the policy that permitted and encouraged our iron and steel manufacturers to outstrip the world is identical in principle to that which the Government is now asked to apply in behalf of the shipping and shipbuilding interests of our nation."

The bill as originally presented by Mr. Payne will be modified with a view to increasing the amount of subsidy to be earned by the vessels of low speed but great carrying capacity. The committee has been much impressed with the importance not only of encouraging shipbuilding and ship owning by granting a reasonable subsidy, but of developing our export trade by providing ample facilities for carrying American goods in American bottoms at economical rates that would furnish an inducement to the American manufacturer to send his goods abroad. It is recognized that large vessels of low speed can be operated at far less expense per ton of carrying capacity than high speed ships, hence an increase in subsidy will be made for vessels of 10, 11 and 12 knots. While the House Committee is considering the measure before it, the Senate Committee on Commerce, which has jurisdiction of the same subject, is also making progress and it is therefore probable that if satisfactory measures can be prepared they will be passed in both houses almost simultaneously, and the difference in the two bills adjusted in conference.

W. L. C.

### Lake Iron Ore Matters.

DULUTH, February 3, 1900.—The highest estimates of the production of lake mines for the coming season are in the neighborhood of 20,000,000 tons, of which some 8,000,000 tons are credited to the Mesaba range. It is entirely within bounds to say that the actual production, if present mine expectations are carried out, may be not a little in excess of the figures set, perhaps 10 per cent. The indications at all underground mines where stock piling and development are under way, and at open pit mines where preparations for the summer's work have been made, and at transportation headquarters lead to such conclusion. It is a little early to make predictions, but this guess is given for what it is worth at this time.

On the Mesaba the Oliver Mining Company have begun the work of opening their new Stevens mine, some distance east of Biwabik and the most easterly property on the range. This is under minimum contract for 100,000 tons this year. The same company have taken a lot more options in town 58-19, including the Hanks 80, this at a price of \$160,000. The company have a lot of lands containing ore close to the Hanks property in sections 14, 15, 16 and adjoining. Interests connected with Corrigan, McKinney & Co. have taken 80 acres north and west of the Commodore mine, near Virginia, and on a higher royalty than is customary on the Mesaba—namely, 30 cents a ton. These lands are with an annual minimum of 75,000 tons. It is an interesting fact that the ore that is being shown here, almost adjoining the Sauntry and a mile north of the Commodore and Franklin, has no resemblance to Sauntry, but is much like that of the later mentioned, whose ores are among the best on the Mesaba. It is understood that the Lake Superior Consolidated

Mines have just closed the purchase of a large tract of land they have explored in town 58-20 for a large price. In the same immediate vicinity other important options are being taken and explorations made. It is reported, and may perhaps be true, that the Oliver Iron Mining Company have taken the Mesaba Chief and Diamond mines, west of Hibbing, that have been partially explored and have remained idle for years. The Mesaba Chief was under option a few months ago to West Virginia furnace men, but they were able to make favorable contracts with operating mining companies and dropped the option, which is now said to have been taken by the Oliver. Their original option was for \$100,000 bonus above the 25 cent lease. The figure paid by the Oliver Company, if a trade has been made at all, is probably considerably less. The Diamond mine has not been generally regarded as of great value. Corrigan, McKinney & Co., who have the Hill mine, west of Hibbing, have renamed it the Stevenson and have begun sinking three shafts for immediate operation.

Rates for leases have risen somewhat of late and one tract on the Mesaba has recently been closed at 35 cents a ton, while others are pending at 30 cents. Of course these figures are made only on ores of high character, both chemically and physically. There is many an ore high in iron on the Mesaba range that a man can worse afford to get for nothing than to pay 50 cents a ton for some other no higher, and this fact is becoming more thoroughly well recognized by companies exploring for new mines.

On the Vermillion range ore seems at last to have been found in some new explorations, after many and costly failures. Both the Oliver and Mahoning companies are doing work at prospects that look so well that machinery is being taken in and preparations made for continuance on an extensive scale.

The Federal Steel Company's explorations on the Marquette and Menominee ranges, heretofore under the name of the Minnesota Iron Company, will now be conducted by the Manilla Iron Company, such corporation having been formed for the purpose. All the explorations for the company in Michigan will be under this name hereafter. At this company's Dexter mine two diamond drills are sinking, and there is little doubt expressed by those who know the field of their success in locating an ore body. Power drills have been installed at the South Jackson and ore will be milled directly to cars, permitting a great improvement in the output. The Lorraine, now being opened by Corrigan, McKinney & Co., is hoisting good ore and the indications are excellent. Preparations for opening the old Argyle, abandoned seven years ago, are under way. This mine is close to the Bessie of the Oliver Company, which latter is showing up better than was anticipated. A large body of ore has been proved and the end is not yet. The same company's Hartford mine is in a way to show well, with diamond drills still working there. The mine will be a deep one, with a shaft sunk to 800 feet before mining is started, and it is not likely to be a producer this year. At the Cleveland Cliffs, Imperial, Webster and Michigamme mines many men are employed and the properties are being put in shape. At Michigamme the mine is about ready for production. Machinery is going in at the Riverside for the Oliver Company and this mine will be a producer this year. The work of unwatering is to start soon.

Considerable ore is going to furnaces, all rail, this winter from the Gogebic and Menominee ranges. Crystal Falls is shipping to the valleys a considerable quantity and expects to send ore to the South later. The Ashland, Hennepin and Carey mines, Gogebic range, are shipping to the Federal Steel Company, as are mines on Iron River. Marquette range is shipping very little aside from what goes to local furnaces. Arrangements have been made to send Mesaba ores to furnaces near St. Louis later in the year to serve as mixtures with the Missouri ores, and inquiries are frequent from other points where ores are wanted. The Mesaba range is shipping 2400 tons weekly to Duluth and quite a tonnage is going daily to local furnaces from the Marquette and Gogebic ranges. The explorations of the Pioneer Iron Company for ore on the Breitung lands near Negaunee still continue unhindered, and if this deal is closed satisfactorily the tonnage to local furnaces will be materially increased.

Stock piles are growing to large proportions on all ranges. Indeed, the winter season is half over and a great tonnage is on surface, possibly more than 3,500,000 tons.

The Ely Exploration Company have been at work north of the Michipicoton field, toward Hudson Bay, and have found some large ore bodies, it is reported, in a roundabout way. The company are understood to represent one of the large consuming interests. The explorations in the Atikokan range, West Ontario, are claimed by those making them to be resulting satisfactorily, and the Mattawin Iron Company, working a short distance east of the Atikokan, is finding ore of good quality. As to the quantity in either of these locations there is considerable question as yet.

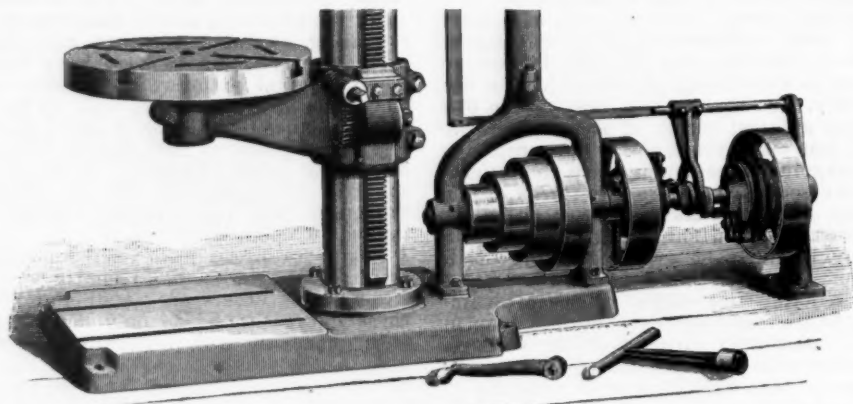
D. E. W.



### The Cincinnati Upright Drill.

The 24-inch drilling machines made by the Cincinnati Machine Tool Company of Cincinnati, Ohio, are intended for easily handling the heaviest work within their capacity. The base is made heavy and deep, strongly ribbed

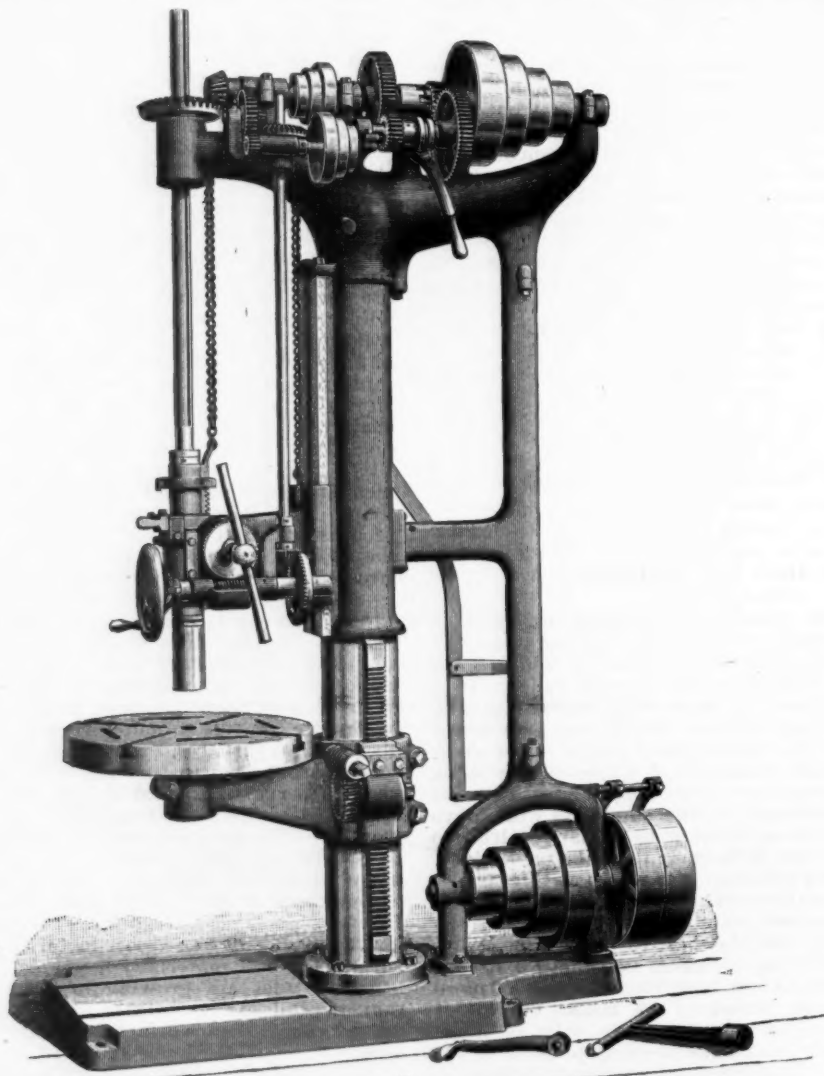
operating the spindle is placed below the worm wheel and runs in a box, which allows it to run in oil continually. The worm box is arranged to drop, to disengage the worm and worm wheel, this movement being brought about by a lever in front of the head. This is adjusted so that the worm and worm wheel will engage to the proper depth at all times, thereby preventing any breaking of



*Fig. 2.—Drill with Friction Pulleys for Tapping.*

and braced so as to avoid all spring. The column has a wide face for receiving the head, which is counterbalanced in the column. The machine is heavily geared, the bevel gears being  $2\frac{1}{4}$  to 1, the ratio with the back gears being  $11\frac{1}{4}$  to 1. The feed cones are placed on top of the

teeth in the worm wheel. The worm shaft is bored its entire length to allow the friction shaft to pass through and permit the friction nut to be placed conveniently in front of the head. The quick return lever is placed on the right of the drill, and returns the spindle very freely.



THE CINCINNATI UPRIGHT DRILL.

column upon a special horizontal shaft, and in this way the belt is kept free from oil and slipping is avoided. The head is fitted with a clamping device, which holds it firmly in any position on the column, and is raised and lowered by means of a rack and pinion. The worm

The spindle is provided with ball bearing thrust washers made of tool hardened steel. The table and table arm raise and lower by means of a worm and worm wheel operating the rack and pinion. This arrangement keeps the table in any position desired, and prevents it from

dropping. The table can be swung around the column, leaving the base plate free for larger work. The engravings show the drill driven by tight and loose pulleys and by friction pulleys for tapping purposes.

## The Work of Our Shipyards.

WASHINGTON, D. C., January 30, 1900.—In connection with the consideration of the Ship Subsidy bill now pending in both houses, an interesting statement has been prepared based on returns received by the Commissioner of Navigation showing the steel vessels now under construction in the various shipyards of the country. The returns are lacking from a few yards, but sufficient data is presented to show a very large proportion of the work now in hand. It will be understood, of course, that these figures do not represent the annual output of the yards, for in many instances the vessels mentioned have been in course of construction for several years. The statistics below were furnished by the firms mentioned in reply to a request for the number of employees, capital invested, number of vessels building, speed of same, and, where practicable, the parties for whom they are building:

### Newport News Shipbuilding Company, Newport News, Va.

Men employed, 6000; capital invested, \$10,000,000.

Merchant vessels: 2 vessels not named, 18,600 tons each, 18 knots speed, building for Pacific Mail Steamship Company for Hawaii and Asian trade; 2 vessels, "Comus" and "Proteus," 5000 tons each, 16 knots speed, building for Cromwell Steamship Company, for the New York and New Orleans trade; 4 vessels, not named, 5000 tons each, 15 knots speed, building for Southern Pacific Steamship Company, for New York and New Orleans trade.

War vessels: 2 battle ships, "Kentucky" and "Kearsarge," 11,525 tons each, 17 knots speed; 1 battle ship, "Missouri," 12,230 tons, 18 knots speed; 1 battle ship, "Illinois," 11,565 tons, 17 knots speed; 1 monitor, "Arkansas," 3235 tons, 12 knots speed.

### Bath Iron Works, Bath, Maine.

Men employed, 1100; capital invested, \$600,000.

Merchant vessels: 2 tow boats, 525 tons each, speed not given, building for New York, New Haven & Hartford Railroad Company.

War vessels: Cruiser "Cleveland," 3200 tons, 17 knots speed; monitor "Connecticut," 3235 tons, 12 knots speed; 1 torpedo boat, "Biddle," 167 tons, 26 knots speed; 2 torpedo boats, "Bagley" and "Barney," 167 tons each, 28 knots speed.

### William Cramp & Sons Company, Philadelphia, Pa.

Men employed, 6000; capital stock, \$5,000,000 (this does not nearly represent the actual investment, nor half cover the total value of property).

Merchant vessels: 2 vessels, not named, 12,000 tons each, 17 knots speed, building for International Navigation Company for transatlantic trade; 3 vessels, "Sierra," "Sonoma" and "Ventura," 7000 tons each, 17 knots speed, building for the Oceanic Steamship Company, for Hawaiian and Australian trade; 1 vessel, not named, 600 tons, 18 knots speed, building for New York and Cuba Mail, for Cuba and Mexican trade; 2 vessels, not named, 4000 tons each, 15 knots speed, building for New York and Cuba Mail, for Cuban and Mexican trade; 2 vessels, not named, 3500 tons each, 14 knots speed, owners in trade not stated.

War vessels: Battle ship "Alabama," 11,565 tons, 17 knots speed; battle ship "Maine," 12,300 tons, 18 knots speed.

### William R. Trigg Company, Richmond, Va.

Men employed, 700; capital not stated.

Merchant vessels, none.

War vessels: Cruiser "Galveston," 3200 tons, 17 knots speed; 2 torpedo boat destroyers, "Dale" and "Decatur," 420 tons each, 28 knots speed; 3 torpedo boats, "Shubrick," "Stockton" and "Thornton," 165 tons each, 26 knots speed.

### Harlan & Hollingsworth Company, Wilmington, Del.

Men employed, 2000; capital stock, \$1,000,000 (\$2,500,000 in new work at present).

Merchant vessels: 1 vessel, "San Juan," 3500 tons, 12 knots speed, building for N. Y. & P. R. S. Company, for New York and Porto Rico trade; 1 vessel, "Grecian," 2550 tons, 15 knots speed, building for Boston & Philadelphia Steamship Company, for coasting trade; 1 vessel, "Manna Hata," 850 tons, 12 knots speed, building for New York and Baltimore Transportation Company, for coasting trade; 1 vessel, "Chesapeake," 650 tons, 12

knots speed, built for New York & Baltimore Transportation Company, for coasting trade; 3 tugs, "Wilmington," "Harrisburg" and "Johnstown," 175 tons each, speed not given, building for Pennsylvania Railroad Company; 1 vessel, not named, 2550 tons, 15 knots speed, building for Metropolitan Steamship Company.

War vessels: 2 torpedo destroyers, "Hopkins" and "Hull," 408 tons each, 29 knots speed; 1 torpedo boat, "Stringham," 340 tons, 30 knots speed.

### Arthur Sewall, Bath, Maine.

Men employed, about 250; capital, \$150,000.

Merchant vessels, none; war vessels, none.

### Delaware River Iron Ship Building & Engine Works, Chester, Pa.

Men employed, 1000; capital not stated.

Merchant vessels: 3 vessels, "American," "Hawaiian," and "Oregonian," 6000 tons each, 10½ knots speed, building for American-Hawaiian Steamship Company, for Hawaiian trade; 1 vessel, "Pennsylvania," 1400 tons, speed not stated, building for N. Y., P. & N. R. R. Company, for coasting trade.

War vessels, none.

### The Neale & Levy Ship & Engine Building Company, Philadelphia, Pa.

Men employed, 1100; capital stock, \$800,000.

Merchant vessels: 1 vessel, "Augusta," 3000 tons, 17 knots speed, building for B. C. & R. S. S. Company, for coasting trade; 1 vessel, "Edward Luckenbach," 700 tons, 12 knots speed, building for Lewis Luckenbach, for coasting trade; 2 vessels, "Richmond" and "Covington," 700 tons each, 12 knots speed, building for Coastwise Steamship Company, for coasting trade; 1 vessel, "Northumberland," 900 tons, 14 knots speed, building for the Weems Line, for coasting trade; 2 vessels, "De Witt C. Ivins, No. 2," and "Michael Moran," 214 tons each, 11 knots speed, building for Michael Moran, for coasting trade.

War vessels: Cruiser "Denver," 3200 tons, 17 knots speed; 3 torpedo destroyers, "Bainbridge," "Barry" and "Chauncey," 420 tons each, 29 knots speed.

### Pusey & Jones, Wilmington, Del.

Men employed, 150 in yard, 700 in shops; capital, \$710,000.

Merchant vessels, none; war vessels, none.

### Atlantic Works, East Boston, Mass.

Men employed, 450; capital, \$700,000.

Merchant vessels, none; war vessels, none.

### Continental Iron Works, Brooklyn, N. Y.

Men employed, 500; capital, \$100,000.

Merchant vessels, none; war vessels, none.

### Columbian Iron Works, Baltimore, Md.

Men employed, 700; capital, \$250,000.

Merchant vessels: 1 vessel, "Hartford," 1554 tons, 15 knots speed, building for Hartford & New York Transportation Company, for coasting trade; 1 vessel, "Savage," 440 tons, 10 knots speed, building for Consolidated Coal Company, for coasting trade.

War vessels: 1 torpedo boat, "Tingey," 165 tons, 26 knots speed; 1 submarine boat, "Plunger," 168 tons, 8 knots speed.

### Union Iron Works, San Francisco, Cal.

Men employed, 3500; capital not stated.

Merchant vessels: 1 vessel, not named, 8500 tons, 11 knots speed, for American-Hawaiian Steamship Company, for Hawaiian trade; several small steamers, not named, tonnage and speed not stated, for coast trade.

War vessels: Battle ship "Ohio," 12,440 tons, 18 knots speed; battle ship "Wisconsin," 11,565 tons, 17 knots speed; cruiser "Tacoma," 3200 tons, 17 knots speed; monitor "Wyoming," 3235 tons, 12 knots speed; 3 torpedo boat destroyers, "Paul Jones," "Perry" and "Preble," 420 tons each, 29 knots speed.

### Maryland Steel Company, Sparrow's Point, Md.

Men employed, 1000; capital, \$1,250,000.

Merchant vessels: 2 vessels, not named, 3800 tons each, 10½ knots speed, building for Metropolitan Dredging Company, for coastwise trade; 2 vessels, not named, 3600 tons each, 9½ knots speed, building for Boston Towboat Company, for coasting trade.

War vessels: 3 torpedo destroyers, "Truxton," "Whipple" and "Worden," 433 tons each, 30 knots speed.

### Moran Bros. Company, Seattle, Wash.

Men employed, 475; capital not stated.

Merchant vessels: 2 tugs, particulars not stated.

War vessels, none.

W. L. C.



## National Founders' Association.

### The Convention at Detroit.

The second annual convention of the National Founders' Association was held at the Hotel Cadillac, Detroit, Mich., on Thursday and Friday of last week. Great interest was manifested in this meeting, an unusually large percentage of the membership being represented. The unrest in labor circles last year and the continuance of such a condition into this year cause special importance to attach to the deliberations of all bodies taking cognizance of labor affairs. Prominent among such bodies is the young organization named the National Founders' Association, which though but two years old has become remarkably strong and influential. Its growth has been due partly to the high principles upon which it was established under the guiding hand of Wm. H. Pfahler, partly to the unselfish devotion to the interests of the organization shown by P. W. Gates and O. P. Letchworth, who have successively been presidents; partly to the energy of district chairmen and committees, who have shown signal ability in handling and settling local labor disputes, and partly to the organizing talent of John A. Penton, who has been secretary from the beginning. The list of the members in attendance is as follows:

- O. P. Letchworth, Pratt & Letchworth Company, Buffalo, N. Y.  
 W. H. Pfahler, Abram Cox Stove Company, Philadelphia, Pa.  
 P. W. Gates, Gates Iron Works, Chicago, Ill.  
 H. M. Leland, Leland & Faulconer Mfg. Company, Detroit, Mich.  
 W. H. Wells, Holly Mfg. Company, Lockport, N. Y.  
 H. W. Hoyt, Gates Iron Works, Chicago, Ill.  
 James Barclay, Deere & Mansur Company, Moline, Ill.  
 Chas. H. Booth, the Lloyd Booth Company, Youngstown, Ohio.  
 A. J. Caldwell, Henry R. Worthington, Brooklyn, N. Y.  
 I. W. Frank, Frank-Kneeland Machine Company, Pittsburgh, Pa.  
 Edgar McDougal, Caledonian Iron Works, Montreal, Quebec.  
 Geo. S. Rominger, Girard Iron Works, Philadelphia, Pa.  
 Joseph A. Stone, Riverside Foundry Company, Cleveland, Ohio.  
 John M. Taylor, Dominion Radiator Company, Toronto, Ont.  
 H. N. Covell, Lidgerwood Mfg. Company, Brooklyn, N. Y.  
 Stanley G. Flagg, Jr., Stanley G. Flagg & Co., Philadelphia, Pa.  
 F. T. Towne, Yale & Towne Mfg. Company, Stamford, Conn.  
 J. S. Caffrey, Smith & Caffrey, Syracuse, N. Y.  
 Wm. D. Sargent, the Sargent Company, Chicago, Ill.  
 John R. Russel and Walter S. Russel, Russel Wheel & Foundry Company, Detroit, Mich.  
 R. H. North, North Bros. Mfg. Company, Philadelphia, Pa.  
 F. A. Smythe, Lorain Foundry Company, Lorain, Ohio.  
 C. M. Power, St. Paul Foundry Company, St. Paul, Minn.  
 Robert Wellisch, South Park Foundry Company, St. Paul, Minn.  
 H. K. McLean, Link-Belt Machinery Company, Chicago, Ill.  
 W. A. Jones, W. A. Jones Foundry & Machine Company, Chicago, Ill.  
 T. K. Webster, Webster Mfg. Company, Chicago, Ill.  
 H. M. Wilson, Taylor, Wilson & Co., Allegheny, Pa.  
 Geo. M. Gillette, Gillette-Herzog Mfg. Company, Minneapolis, Minn.  
 A. M. Eddy, R. M. Eddy Foundry Company, Chicago, Ill.  
 W. W. Green, Garden City Fan Company, Chicago, Ill.  
 John Ramsey, John Ramsey, Chicago, Ill.  
 Geo. McG. Morris, John B. Morris Foundry Company, Cincinnati, Ohio.  
 Henry J. Gosiger, Eureka Foundry Company, Cincinnati, Ohio.  
 W. H. Kuhns, Kuhns Bros., Dayton, Ohio.  
 A. Jarecki, Jarecki Mfg. Company, Erie, Pa.  
 F. A. Ingalls and Chas. C. Shepard, Buda Foundry & Mfg. Company, Chicago, Ill.  
 D. J. Kilby, Kilby Mfg. Company, Cleveland, Ohio.  
 Chas. L. Bauer and Chas. H. Gale, Warder, Bushnell & Glessner Company, Springfield, Ohio.  
 Fred. Frazer, Frazer & Jones, Syracuse, N. Y.  
 Thos. E. Durban, Erie City Iron Works, Erie, Pa.  
 L. M. Johnston, New Era Iron Works Company, Dayton, Ohio.  
 T. W. Sheriff, Sheriff's Mfg. Company, Milwaukee, Wis.  
 Thos. P. Gaddis, Dayton Malleable Iron Company, Dayton, Ohio.  
 G. R. Metcalf, Erie Malleable Iron Company, Erie, Pa.  
 Willis Brown, Walker Foundry Company, Erie, Pa.  
 A. B. Wenink and John Wenink, Walworth Run Foundry Company, Cleveland, Ohio.  
 T. J. Neacy, Filer & Stowell Company, Limited, Milwaukee, Wis.  
 O. P. Briggs, Twin City Iron Works, Minneapolis, Minn.  
 Geo. D. Selden, Erie City Iron Works, Erie, Pa.  
 C. J. Langdon, Fulton Foundry Company, Cleveland, Ohio.  
 Chas. A. Patterson, Patterson Foundry Company, Cleveland, Ohio.  
 W. B. Green, Palmer & De Mooy Foundry Company, Cleveland, Ohio.  
 Edmund E. Allyne, Van Wagoner & Williams Hardware Company, Cleveland, Ohio.  
 J. E. Zimmerman, Eureka Foundry Company, Dayton, Ohio.  
 W. L. Herendeen and E. R. Burrows, Herendeen Mfg. Company, Geneva, N. Y.  
 D. G. Moore, Samuel L. Moore & Sons Company, Elizabeth, N. J.  
 E. H. Walker, J. I. Case Threshing Machine Company, Racine, Wis.  
 B. C. Wait, Milwaukee Harvester Company, Milwaukee, Wis.  
 D. E. Harlin, Lima Steel Castings Company, Lima, Ohio.  
 W. A. Draves, Northwestern Malleable Iron Company, Milwaukee, Wis.  
 W. W. Balkwell, Bowler & Co., Cleveland, Ohio; Cleveland Steel Castings Company, Cleveland, Ohio.  
 S. J. Meeker, S. J. Meeker, Newark, N. J.  
 Allen Ames, Ames Iron Works, Oswego, N. Y.  
 H. E. Maslin, E. C. Stearns & Co., Syracuse, N. Y.  
 J. H. Webster and J. P. McGuire, Variety Iron Works, Cleveland, Ohio.  
 W. B. Burns, Syracuse Malleable Iron Works, Syracuse, N. Y.  
 G. A. Farrell, Johnston Harvester Company, Batavia, N. Y.  
 G. A. Watts, Watts-Campbell Company, Newark, N. J.  
 F. D. Wanning, Birmingham Iron Foundry, Derby, Conn.  
 N. B. Payne, Payne Company, Elmira, N. Y.  
 Geo. H. Cushing, Goulds Mfg. Company, Seneca Falls, N. Y.  
 W. S. Moorehouse, Rumsey & Co., Limited, Seneca Falls, N. Y.  
 E. L. Rowe, Rensselaer Mfg. Company, Troy, N. Y.  
 Wm. M. Taylor, Chandler & Taylor Company, Indianapolis, Ind.  
 Kate Gleason, Genesee Foundry Company, Rochester, N. Y.  
 J. L. Ketcham, Brown-Ketcham Iron Works, Indianapolis, Ind.  
 Geo. B. Sennett, Geo. B. Sennett, Youngstown, Ohio.  
 Daniel Kennedy, Kennedy Valve Mfg. Company, Cox-sackie, N. Y.  
 H. P. Deuscher, H. P. Deuscher & Co., Hamilton, Ohio.  
 Geo. H. Graham, Oriskany Malleable Iron Company, Oriskany, N. Y.  
 Jas. R. Floyd, Jr., Jas. R. Floyd's Sons, New York.  
 Slater Laycock, Economy Foundry & Machine Company, Syracuse, N. Y.  
 Jas. A. Myers and C. F. McGilvray, Robbins & Myers Company, Springfield, Ohio.  
 J. H. Whiting, Whiting Foundry Equipment Company, Chicago, Ill.  
 Wm. Butterworth, Deere & Co., Moline, Ill.  
 M. H. Barker, American Tool & Machine Company, Boston, Mass.  
 N. French, Bettendorf Metal Wheel Company, Davenport, Iowa.  
 Henry F. Arnold, American Tool & Machine Company, Boston, Mass.  
 Ed. Maher, Maher & Flockhart, Newark, N. J.  
 W. W. Ward, Syracuse Chilled Plow Company, Syracuse, N. Y.  
 W. W. Cheney, S. Cheney & Son, Manlius, N. Y.  
 W. H. Brown, Economy Foundry & Machine Company, Syracuse, N. Y.  
 B. H. Sanders, Pleuger & Henger Mfg. Company, St. Louis, Mo.  
 Geo. B. Buckingham, Arcade Malleable Iron Company, Worcester, Mass.  
 Chas. T. Colvin, Colvin Foundry Company, Providence, R. I.  
 M. Griswold, Jr., Griswold Mfg. Company, Erie, Pa.  
 J. S. Van Cleave, Erie Foundry Company, Erie, Pa.  
 Antonio C. Pessano, Geo. V. Cresson Company, Philadelphia, Pa.  
 Geo. Q. Thornton, Carondelet Foundry Company, St. Louis, Mo.  
 Ferd. Schwedtmann, Magnetite Foundry Company, St. Louis, Mo.  
 J. A. Rathbone, United States Heater Company, Detroit, Mich.



M. T. Conklin, Gale Mfg. Company, Albion, Mich.  
 H. S. Ayers, Michigan Brass & Iron Works, Detroit, Mich.  
 Thos. Murphy, Murphy Iron Works, Detroit, Mich.  
 F. A. Strong, Eaton, Cole & Burnham Company, New York.  
 J. W. Gardner, Gardner Governor Company, Quincy, Ill.  
 W. D. Dunning, W. D. Dunning, Syracuse, N. Y.  
 Thos. Devlin, Thos. Devlin & Co., Philadelphia, Pa.  
 Wm. Medart, Medart Patent Pulley Company, St. Louis, Mo.  
 D. J. Matlack, Wm. Cramp & Sons Ship & Engine Building Company, Philadelphia, Pa.  
 E. P. Botsford, Pittsburgh Malleable Iron Company, Pittsburgh, Pa.  
 DeW. Loomis and Allen W. Atterbury, Detroit Steel & Spring Company, Detroit, Mich.  
 Walter Perry, Farrel Foundry & Machine Company, Ansonia, Conn.  
 O. J. Needham, Dayton Malleable Iron Company, Dayton, Ohio.  
 Geo. H. Stevens, Brooks Locomotive Works, Dunkirk, N. Y.  
 Chas. Sulbach, Forest City Foundry & Mfg. Company, Cleveland, Ohio.  
 F. E. Stickel, Leland & Faulconer Mfg. Company, Detroit, Mich.  
 Thos. F. Meek, Detroit Steel & Spring Company, Detroit, Mich.  
 John Smith, Jr., Sam'l F. Hodge & Co., Detroit, Mich.  
 W. E. Miller, Fairbanks, Morse & Co., Chicago, Ill.

The other members of this association, it is interesting to note at this time, are as follows:

Barbour-Stockwell Company, Boston, Mass.  
 Geo. F. Blake Mfg. Company, East Cambridge, Mass.  
 A. Carpenter & Sons Foundry Company, Providence, R. I.  
 Condor Iron Foundry Company, Boston, Mass.  
 Davenport & Treacy Company, Stamford, Conn.  
 Davis Foundry Company, Lawrence, Mass.  
 Davis & Farnum Mfg. Company, Waltham, Mass.  
 Deane Steam Pump Company, Holyoke, Mass.  
 Holyoke Machine Company, Worcester, Mass.  
 Geo. H. Lincoln & Co., South Boston, Mass.  
 Mechanics Iron Foundry Company, Boston, Mass.  
 New England Butt Company, Providence, R. I.  
 Phenix Iron Foundry, Providence, R. I.  
 Thomson-Houston Electric Company, Lynn, Mass.  
 The G. F. Warner Mfg. Company, New Haven, Conn.  
 Wm. Allen & Sons, Worcester, Mass.  
 Baush & Harris Machine Tool Company, Springfield, Mass.  
 Jas. Hunter Machine Company, North Adams, Mass.  
 E. D. Jones & Sons Company, Pittsfield, Mass.  
 The McLagon Foundry Company, New Haven, Conn.  
 Pratt & Whitney Company, Hartford, Conn.  
 Russell & Erwin Mfg. Company, New Britain, Conn.  
 Arthur E. Barlow, Newark, N. J.  
 J. Ginther's Sons, Buffalo, N. Y.  
 Reddin Iron Works, Syracuse, N. Y.  
 Trenton Malleable Iron Company, Trenton, N. J.  
 Chisholm & Moore Mfg. Company, Cleveland, Ohio.  
 J. W. Foley & Co., Cincinnati, Ohio.  
 Jones & Bruce, Cincinnati, Ohio.  
 Ross-Meehan Foundry Company, Chattanooga, Tenn.  
 Stillwell-Bierce & Smith-Vaile Company, Dayton, Ohio.  
 Fraser & Chalmers, Chicago, Ill.  
 Greenslade Foundry Company, Milwaukee, Wis.  
 Rockwood Mfg. Company, Indianapolis, Ind.  
 The J. G. Wagner Company, Milwaukee, Wis.  
 Walburn-Swenson Company, Chicago, Ill.  
 Benj. Atha & Illingworth Company, Newark, N. J.  
 E. W. Bliss Company, Brooklyn, N. Y.  
 The A. & F. Brown Company, Elizabethport, N. J.  
 Buffalo Forge Company, Buffalo, N. Y.  
 Buffalo Pitts Company, Buffalo, N. Y.  
 Cooke Locomotive & Machine Company, Paterson, N. J.  
 Benjamin Eastwood Company, Paterson, N. J.  
 Edison General Electric Company, Schenectady, N. Y.  
 Gihlin & Co., Utica, N. Y.  
 H. C. Harney & Co., Brooklyn, N. Y.  
 Hewes & Phillips Iron Works, Newark, N. J.  
 Howard Iron Works, Buffalo, N. Y.  
 McIntosh, Seymour & Co., Auburn, N. Y.  
 McNab & Harlin Mfg. Company, Paterson, N. J.  
 Mesick & Van Eps, Brooklyn, N. Y.  
 J. L. Mott Iron Works, New York, N. Y.  
 Pierce, Butler & Pierce Mfg. Company, Syracuse, N. Y.  
 Schenectady Locomotive Works, Schenectady, N. Y.  
 T. Shriver & Co., New York, N. Y.  
 Snow Steam Pump Works, Buffalo, N. Y.  
 Straight Line Engine Company, Syracuse, N. Y.  
 Watson Machine Company, Paterson, N. J.  
 Bement, Miles & Co., Philadelphia, Pa.  
 Brittan & Mathes Company, Pittsburgh, Pa.

Fischer Foundry & Machine Company, Pittsburgh, Pa.  
 Globe Iron Foundry Company, Erie, Pa.  
 Hydraulic Machine Company, Pittsburgh, Pa.  
 Patrick Kennedy, Baltimore, Md.  
 Mesta Machine Company, Pittsburgh, Pa.  
 National Foundry Company, Erie, Pa.  
 Phillips & McLaren, Pittsburgh, Pa.  
 Pittsburgh Mfg. Company, Pittsburgh, Pa.  
 Rosedale Foundry Company, Allegheny, Pa.  
 Sterrit & Thomas Foundry Company, Pittsburgh, Pa.  
 R. D. Wood & Co., Philadelphia, Pa.  
 William Yagle & Co., Limited, Pittsburgh, Pa.  
 Albion Malleable Iron Company, Albion, Mich.  
 The Lloyd Booth Company, Youngstown, Ohio.  
 The Buckeye Foundry Company, Cincinnati, Ohio.  
 City Foundry Company, Cleveland, Ohio.  
 Dayton Globe Iron Works Company, Dayton, Ohio.  
 Chris. Erhart, Cincinnati, Ohio.  
 Fanner Mfg. Company, Cleveland, Ohio.  
 Gartland Foundry Company, Cleveland, Ohio.  
 Hoeflinghoff & Laue Foundry Company, Cincinnati, Ohio.  
 Hooven, Owens & Rentschler Company, Hamilton, Ohio.  
 L. Jones' Sons, Cincinnati, Ohio.  
 The O. S. Kelly Company, Springfield, Ohio.  
 James Leffel & Company, Springfield, Ohio.  
 Long & Allstatter Company, Hamilton, Ohio.  
 Maher Wheel & Foundry Company, Cleveland, Ohio.  
 MacBeth & Co., Cleveland, Ohio.  
 Niles Tool Works Company, Hamilton, Ohio.  
 Ohio Foundry Company, Cleveland, Ohio.  
 Otis Steel Company, Limited, Cleveland, Ohio.  
 Queen City Foundry Company, Cincinnati, Ohio.  
 Springfield Malleable Iron Company, Springfield, Ohio.  
 Stoddard Mfg. Company, Dayton, Ohio.  
 The Samuel C. Tatum Company, Cincinnati, Ohio.  
 Taylor & Boggis Foundry Company, Cleveland, Ohio.  
 C. F. Thauwald & Co., Cincinnati, Ohio.  
 William Tod & Co., Youngstown, Ohio.  
 Walker Company, Cleveland, Ohio.  
 Youngstown Foundry & Machine Company, Youngstown, Ohio.  
 Aermotor Company, Chicago, Ill.  
 Aetna Iron Works, St. Louis, Mo.  
 The E. P. Allis Company, Milwaukee, Wis.  
 American Hoist & Derrick Company, St. Paul, Minn.  
 American School Furniture Company, Racine, Wis.  
 Wm. Bayley & Sons Company, Milwaukee, Wis.  
 Belle City Malleable Iron Company, Racine, Wis.  
 Belle City Mfg. Company, Racine, Wis.  
 J. I. Case Plow Works, Racine, Wis.  
 Christopher & Simpson Architectural Iron & Foundry Company, St. Louis.  
 Dean Bros. Steam Pump Works, Indianapolis, Ind.  
 Diamond Iron Works, Minneapolis, Minn.  
 The Wm. Ferguson Foundry Company, Chicago, Ill.  
 S. T. Ferguson, Minneapolis, Minn.  
 James Frake, Chicago, Ill.  
 S. Freeman & Sons Mfg. Company, Racine, Wis.  
 Garr, Scott & Co., Richmond, Ind.  
 Green's Car Wheel Mfg. Company, St. Louis, Mo.  
 Haugh-Noelke Iron Works, Indianapolis, Ind.  
 Hetherington & Berner, Indianapolis, Ind.  
 B. Hoffman Mfg. Company, Milwaukee, Wis.  
 Kingsland Mfg. Company, St. Louis, Mo.  
 Koken Iron Works, St. Louis, Mo.  
 Menzel Foundry Company, Minneapolis, Minn.  
 Missouri Malleable Iron Company, East St. Louis, Ill.  
 Moline Malleable Iron Company, St. Charles, Ill.  
 Moline Plow Company, Moline, Ill.  
 Moline Pump Company, Moline, Ill.  
 Henry Orme, St. Paul, Minn.  
 Parker & Topping, Brainerd, Minn.  
 Parkhurst Bros. & Co., Indianapolis, Ind.  
 Peerless Foundry Company, Indianapolis, Ind.  
 C. & A. Potts & Co., Indianapolis, Ind.  
 Henry Pridmore, Chicago, Ill.  
 Racine Malleable & Wrought Iron Company, Racine, Wis.  
 Rock Island Plow Company, Rock Island, Ill.  
 Schwab & Sercomb, Milwaukee, Wis.  
 Shickel-Harrison & Howard Iron Company, St. Louis, Mo.  
 Sinkers-Davis Company, Indianapolis, Ind.  
 Smeeth's Copper & Bronze Company, Chicago, Ill.  
 St. Louis Iron & Machine Works, St. Louis, Mo.  
 Stowell Mfg. & Foundry Co., South Milwaukee, Wis.  
 Tarrant Foundry Company, Chicago, Ill.  
 Union Iron Foundry Company, St. Louis, Mo.  
 Union Malleable Iron Company, Moline, Ill.  
 Valley Iron Works, St. Paul, Minn.  
 Waukesha Malleable Iron Company, Waukesha, Wis.  
 Western Foundry Company, Chicago, Ill.  
 Western Malleable & Gray Iron Mfg. Company, Milwaukee, Wis.  
 Williams, White & Co., Moline, Ill.  
 Winslow Bros. Company, Chicago, Ill.  
 Wisconsin Malleable Iron Company, Milwaukee, Wis.

P. Ames, Montreal, Quebec.  
 Canada Switch & Spring Company, Limited, Montreal, Quebec.  
 Garth & Co., Montreal, Quebec.  
 H. R. Ives & Co., Montreal, Quebec.  
 Warden King & Son, Montreal, Quebec.  
 Laurie Engine Company, Montreal, Quebec.  
 Montreal Pipe Foundry Company, Montreal, Quebec.  
 Northey Mfg. Company, Limited, Toronto, Ontario.  
 Estate of Moses Parker, Montreal, Quebec.  
 Wm. Rodden & Co., Montreal, Quebec.

This list of 275 members is a magnificent showing of strength, more than sufficient to command the respect of the labor organizations with which the association has to deal. The roll a year ago showed but 94 members.

The proceedings of the convention consisted largely of routine business. President O. P. Letchworth presented the report of the Administrative Council, which treated of the manner in which numerous labor difficulties had been handled. One of the most interesting issues arose in Cleveland, and in that case the association adopted the very successful policy of compensating from its own treasury those molders who remained faithful to their employers. Payment was made to each individual in envelopes bearing the printed name of the association, so that the molders were plainly informed of the source from which came the premium for their faithfulness. The spirit of the report was of the most temperate character, indicating that the council is not in favor of drastic measures in dealing with labor troubles. Quite a number of important recommendations were made which had in view the greater efficiency of the association as a practical working body and the general improvement of the foundry trade. The report of Secretary John A. Penton gave interesting details of the growth of the association and the work done during the year. The report of Treasurer W. H. Wells showed the association is in very good financial condition.

An excellent method of securing the prompt dispatch of business was the appointment early in the first session of a committee to arrange an order of business for the convention, consisting of H. N. Covell, P. W. Gates and H. M. Leland, who shortly afterward submitted a programme which was adopted by the convention and adhered to by the president.

Exceedingly interesting discussions followed the presentation of every topic brought forth for an expression of opinion as well as every report made by a committee. Among the most important of these were on the subjects of apprentices and contracts with workmen. These questions were not discussed from a narrow and selfish standpoint, but with a proper regard for the rights of all concerned. An able report on apprentices was presented by Wm. H. Pfahler, chairman of the committee appointed to consider that matter. In it a great many instructive statistics were incorporated which had been collected by the committee from original sources, mainly from the membership of the association. A surprisingly large proportion of the foundries herein represented were shown to have in their employ a good percentage of journeymen molders who had learned their trade in the shop in which they are now employed. The report and the discussion which followed dealt with the apprenticeship question in a broad way, as having great importance in connection with the future supply of molders, but the fact is remarkable that no expression of hostility was uttered against the restriction of the number of apprentices by the molders' union. The matter was not brought forward as a bone of contention, but as a seriously important question both from a business standpoint and a proper consideration of public interests. The great diversity of interests in the association brought up the question of the desirability of dividing the membership into groups, and it was decided that this should be done so that arbitration committees can be selected from the line of trade directly interested, thus insuring more satisfactory results as well as economy of time by the arbitrators. Local organizations of foundrymen having proved of much practical benefit in a number of cities, a resolution was adopted encouraging their growth, but advising that their by-laws be drawn not to conflict with those of this association. Other important questions were discussed which pertain solely to the business of the association.

The Committee on Nominations, composed of Stanley G. Flagg, Jr., F. T. Towne and Wm. D. Sargent, presented their report, which was accepted, and the entire list of names submitted received the approval of the convention in the subsequent election, except in the case of two members of district committees who declined the proffered honor. The officers thus elected are as follows:

President (re elected), O. P. Letchworth of Buffalo.  
 Vice president, H. W. Hoyt of Chicago.  
 Secretary (re elected), John A. Penton of Detroit.  
 Treasurer, John R. Russel of Detroit.  
 First District Committee, M. H. Barker of Boston, G. B. Buckingham of Worcester, H. A. Carpenter of Provi-

dence, Walter Perry of Ansonia and F. T. Towne of Stamford.

Second District Committee, H. N. Covell of Brooklyn, G. E. Emmons of Schenectady, William Burns of Syracuse, Edward Maher of Newark and Wm. Wendt of Buffalo.

Third District Committee, A. C. Pessano of Philadelphia, Thomas E. Durban of Erie, Stanley G. Flagg, Jr., of Philadelphia, I. W. Frank of Pittsburgh and George Mesta of Pittsburgh.

Fourth District Committee, J. A. Stone of Cleveland, C. H. Booth of Youngstown, T. P. Gaddis of Dayton, H. J. Gosiger of Cincinnati and W. S. Kessler of Albion, Mich.

Fifth District Committee, W. D. Sargent of Chicago, G. Q. Thornton of St. Louis, W. M. Taylor of Indianapolis, T. K. Webster of Chicago and James Barclay of Moline.

Sixth District Committee, F. W. Sivyver of Milwaukee, G. M. Gillette of Minneapolis, E. H. Walker of Racine, Charles Allis of Milwaukee and C. M. Power of St. Paul.

Seventh District Committee, Edgar McDougall of Montreal, John Taylor of Toronto, T. Drummond of Montreal, W. H. Laurie of Montreal and J. P. Northey of Toronto.

The president, vice-president, treasurer and the chairman and vice-chairman of each district committee form the Administrative Council.

A proposed amendment to the constitution, designating November instead of February as the month in which the annual meeting shall be held, is to be submitted to the members for ratification by letter ballot.

T. W. Sheriff of Milwaukee extended a very pressing invitation to the association to hold their next convention in that city. This will be passed upon in due time by the Administrative Council.

The sessions of the convention closed with an address by President Letchworth, in which he dwelt upon the importance of the work to be performed by the association and asked for the hearty co operation of the officers and members.

#### The Banquet.

The members of the association enjoyed a banquet on Thursday evening. Walter S. Russel of Detroit acted as toastmaster, filling his duties with the grace of a practiced hand. He called first upon President Letchworth, who gave, briefly, eloquently and most feelingly a review of the history of the organization, bestowing all the credit for its inception and progress upon the first president of the association, W. H. Pfahler, after which he presented to that gentleman, on behalf of the association, a silver loving cup about 18 inches high and of exquisite form.

Upon one side of the cup, in low relief, is shown a view in a foundry, with the cupola, cranes and flasks artistically drawn, while in the foreground in high relief is the muscular half naked figure of a molder. Below this design is the sentiment, "Fair Dealing and Mutual Protection." On the opposite side of the cup is a tablet entwined with graceful scrolls and oak leaves in relief, upon the tablet being the inscription: "Presented to William H. Pfahler by the National Founders' Association as a slight evidence of appreciation of his long, untiring and unselfish efforts in its behalf."

Mr. Pfahler, who was unquestionably astonished, made a brief and most sincere acknowledgment, thanking the association for the tribute and setting forth the great position in the arts and the progress of civilization held by the molders and the founders. He concluded by saying:

"I ask only that the future history of this association shall show, as I am confident it will show, that the members, individually and as a body, shall always bear in mind: First, That the dignified position they occupy in the economics of the world must be filled in a dignified manner; and, second, that the elevation of the industry and its interests can only be assured by honest, equitable treatment of all engaged therein, from the master to the humblest mechanic."

Speeches were made by P. W. Gates of Chicago, D. J. Matlack of Philadelphia, George M. Gillett of Minneapolis, Edward McDougall of Montreal, Thomas Devlin of Philadelphia, George McG. Morris of Cincinnati, H. M. Leland of Detroit and Geo. W. Cope of *The Iron Age*.

#### Convention Notes.

The National Metal Trades' Association, an organization formed on identical lines with the National Founders' Association, and intended to cover allied trades, such as machine shops, blacksmith shops, pattern shops, structural iron working shops and kindred lines of business, was represented at this convention by the treasurer, H. N. Covell of Brooklyn; the secretary, A. J. Caldwell of New York, and the assistant secretary, Henry F. Devens 95 Liberty street, New York. Informal meetings of these officers were held with numerous foundrymen who are also interested in developing an association of this charac-



ter. The Metal Trades' Association has been in existence but a short time, yet has within its brief career secured approximately 50 prominent firms in its membership. The movement promises to grow rapidly in view of the labor complications which are now threatening the machine trade as well as other branches of business closely allied. The interests of this new association are so interwoven with those of the foundrymen that the membership is likely to be in a great measure identical. The interests, however, are sufficiently separated to make a distinct movement necessary to handle the questions arising in the machinery trade. Great encouragement was given to the movement at Detroit, and it is expected that the new association will in a short time become an exceedingly vigorous organization. The list of officers this year is as follows: President, Geo. D. Selden, Erie City Iron Works, Erie, Pa.; first vice-president, F. H. Stillman, Watson Stillman Company, New York; second vice-president, Chas. L. Newcomb, Deane Steam Pump Company, Holyoke, Mass.; treasurer, H. N. Covell, Lidgerwood Mfg. Company, Brooklyn, N. Y.; secretary, A. J. Caldwell, Henry R. Worthington, Brooklyn, N. Y.; Administrative Council: Geo. D. Selden, F. H. Stillman, H. N. Covell, M. H. Barker, Fred F. Stockwell, Geo. A. Watts, Nathan B. Payne, H. M. Leland, J. A. Jeffrey, J. W. Gardner, F. W. Pillsbury, Charles Allis, H. W. Conger, Ferd. Schwedtmann, N. O. Nelson.

Among those who registered and were duly received as entitled to sit in the convention was Miss Kate Gleason of Rochester, N. Y., representing the Genesee Foundry. She was the only woman in the convention, but was present at all the sessions and took a deep interest in the proceedings.

Quite a number of dinners were given at the Detroit Club during convention week. Among them was one tendered by the local founders on Wednesday evening to the members of the Administrative Council and a few others who had arrived in advance. Prominent among those who acted as hosts were George H. Russel, George H. Barbour and John R. Russel. Another extremely pleasant affair in the same line was a luncheon given on Thursday by J. H. Whiting of the Whiting Foundry Equipment Company to a number of his Chicago friends.

### Three Systems of Selling Pig Iron \*

BY GEORGE H. HULL, NEW YORK.

In considering the methods of conducting the pig iron business in the three most important iron producing countries, it might be well to first review the nature of this business in the United States, that we may better judge of what particular system will meet the exact demands of the business in this country.

Each decade in the history of pig iron consumption in the United States marks an enormous increase. This increase does not come with regularity; on the contrary, it presents a succession of long periods, covering several years, when the consumption remains about the same, with prices ruling so low that many furnaces are forced out of blast and into the hands of the Sheriff. This is followed by short periods of a few months when the consumption increases from 50 to 100 per cent. In these seasons of great consumptive activity it is impossible to increase the output to meet the demands. There is a famine in all iron and steel products which causes expensive delays in important enterprises. Prices advance to enormous figures; many concerns who have large contracts and small stocks find themselves actually paying more for their raw material than they are to get for the finished product. They hardly get their business shaped up to meet the new conditions before prices go tumbling down again, spreading loss and disaster on every side, to be followed by another long period of depression.

Iron is so thoroughly the basis of all industries that what affects it must affect all manufacturing business.

The question, therefore, which most concerns every consumer of pig iron is what system will insure the greatest regularity in supply with most stability in price?

An ideal system to fit such conditions would be the existence of some group of individuals, with vast wealth, who would come forward and buy from the producers, for cash, at fair prices, all the surplus iron made during the several years of small consumption and then in turn, during the recurring seasons of great manufacturing activity, resell it to the consumers.

Which system most nearly resembles this ideal?

#### German Syndicate System.

The pig iron business of Germany is conducted by a syndicate or association of the individual producers. The leading idea of its organizers was to do away with need-

less and ruinous competition among themselves. At the time of its formation it was made quite clear that the organization did not wish, or intend, to enhance prices to the consumers in an oppressive way.

At the beginning each member was required to file a statement of his or their production for a number of years, and the average annual production of each, as thus shown, was made the basis of the percentage of production allowed to each company from time to time. When the demand for iron falls off the total production of the furnaces is cut down accordingly; when the demand increases the total production, as far as the capacity of the furnaces permits, is increased to conform to the greater demand. As it is not always practical for each company to cut down production to meet the arbitrary percentage ordered the difficulty is met by a payment, by the syndicate, to the furnace company who make less than their allotment and by a corresponding collection from the furnace company who make more than their allotment. In order to keep the respective parties to their agreements each individual or company on being admitted to membership is required to deposit with the syndicate bank an accepted sight bill for a certain amount, with the condition that said sight bill is to be forfeited to the syndicate if the conditions of the agreement are violated by the member depositing it. The syndicate has one office. All inquiries for iron from consumers and dealers must be addressed to this office, and no member is allowed to sell except through this channel. The syndicate purchases all supplies for its members; it fixes the prices for the different qualities of iron from time to time; it will sell for delivery six or 12 months ahead, or longer, to meet special requirements.

The system has resulted in a large reduction in the expense of selling iron, and in a very considerable saving in the purchasing of supplies. It has entirely done away with ruinous competition and has maintained prices which have been fairly remunerative to the producers.

There are objections to the system. It puts all the power in the hands of the producers, a power which is at any time liable to be abused. It is artificial. It is not the result of free and untrammelled operation of natural laws. It is a forced condition, held together by an agreement which is maintained by the fear of forfeits and penalties. History does not furnish a single example of any business system, formed and maintained by such methods, which has endured. The serious defect of the system lies in the fact that it not only lacks a method of accumulating and carrying a reserve stock in dull times, but its chief object is to prevent such an accumulation. A system which restricts the production of the article most necessary to the growth of the country in wealth and power is arrayed against the public good and should be prohibited by national law.

#### British Warrant System.

The British warrant system originated in Scotland about the year 1840, though no statistics of same have been preserved further back than 1845. Briefly stated the warrant system is to the pig iron business what the elevator system is to the grain business and what the public warehouse system is to the cotton business.

The functions of a warrant company are few and simple; they receive into their yards pig iron which they have previously weighed, inspected and classified, and for which they give to the owner of the iron a warrant. This warrant is simply a negotiable warehouse receipt which describes the brand, quality and weight of the iron it represents, and guarantees or warrants that on return of the warrant duly indorsed and payment of storage they will deliver the iron it describes, free on board cars, to the party presenting said document.

A warrant company perform no other acts or functions, but the effect of these acts is to create a document which the furnace company can sell for cash and which can be transferred by sale any number of times, each purchaser becoming the owner of the iron by the transfer of the document, each purchaser having the right to resell the warrant or to cancel it and obtain the iron for export, consumption or any other desired purpose.

At first the Scotch warrant consisted of scrip or storage receipts, issued by the pig iron makers, for the convenience of dealers, but so many irregularities occurred that it was found necessary to have the iron stored in the yards of an independent firm of undoubted standing. The firm of Connal & Co., now Connal & Co., Limited, inaugurated the system of issuing the present "Store-keeper's Warrant."

For 50 years these warrants have been regarded as an absolute security; money is loaned upon them with confidence by every bank in the kingdom, the prevailing rate of interest being one-half of 1 per cent. per annum above the Bank of England rates, which is a rate enjoyed only by the most favored collateral. The semi-daily dealings in these warrants is the prominent feature on the floor of the Royal Exchange of Glasgow. The warrants are bought and sold, not only by the iron producer, con-

\* A paper read before the Associated Foundrymen's Association.

sumer and merchant, but by the general public; it is, in fact, the favorite security among all classes who buy and sell for a profit, and the dealings in consequence are enormous; there are more than 70 members of the exchange who make a specialty of buying and selling warrants for the public. The wheat certificate is the only security in the United States which in popularity approaches the popularity of the pig iron warrant in Great Britain.

The statistics of the Scotch warrant system show that the average reserve stock of iron carried by that method during the last 50 years has been more than six months' production; for one period of five years it was more than 12 months' production. There have been six periods of accumulation and six periods of depletion of stock, and three times these large reserve stocks have been reduced to less than 100,000 tons. This is evidence that the seasons of accumulation were not seasons of overproduction, since each accumulation was afterward almost entirely exhausted by the legitimate business demands of the country.

It is no more overproduction to make and store up enough iron in seven years of dullness to supply the business of the country through two years of activity than it is to raise and store up in a few weeks of harvest enough grain to supply the country during 12 months of consumption; it simply requires a broader mind to take in the proposition.

Great Britain has been the country to which for a century all the world has looked for everything connected with iron. An English contractor will undertake a contract in a foreign country which requires 50,000 tons of iron and five years to complete as readily as an American contractor will take one which can be completed in a few months, simply because he can protect himself against fluctuations in price of iron and steel through the warrant system. When a contract is taken by the English contractor he immediately closes a contract with his exchange dealer for warrants covering 50,000 tons at the market price, which the dealer agrees to carry at 2 cents per ton per month storage and a low rate of interest, perhaps  $1\frac{1}{2}$  per cent. per annum. It may be a year before the contractor is ready to give an order for the first 10,000 tons of steel to be used in his work; when he gives the order he sells an equal tonnage of his warrants. If the price of steel has advanced the warrant iron has advanced; if iron has declined he buys his steel at a corresponding decline; he is thus protected on each order he places for steel during the five years. By this means he eliminates all risk of fluctuations and confines his business to its legitimate profits.

The warrant system has no disadvantages and no just argument can be made against it. There is no good thing, however, which cannot be misused. Some people have tried to corner the warrant market, and, as usual, been badly crippled in the attempt. These victims of their own folly have made an outcry against it and made an effort to have the system abolished by Parliament. They were like the few frogs in the pond which made so much noise it was thought there were a million, but when the roundup took place they discovered the three loneliest men who ever arrayed themselves against a nation. It would be just as reasonable to ask Parliament to abolish razors, because a few people have been known to cut their throats with them. The effect of these corners upon those who were engaged in the legitimate business of producing, consuming or dealing was simply to give them an opportunity of unloading all their surplus on the ring at high prices while the corner lasted, to be bought back the next month at a handsome profit. The legitimate price of a staple must and always will assert itself by and through the actual business doing in that staple. Speculative interference has had, and can have, only a temporary influence.

An argument used against the system by some of its opponents is that it creates a collateral on which producers can easily borrow money from banks, and that parties have sometimes so borrowed and have increased and continued so borrowing on their product until they were ruined.

This argument is characterized by such intellectual depth and penetration that the only remedy we can suggest is that Parliament be asked to abolish banks at the same time it does razors. It is of course a folly for any producer to pile up his product and carry it for several years with interest and storage charges accumulating against it, for unless it advances enormously at the end it is likely to terminate disastrously. The dealer, however, under modern exchange methods may carry iron under these conditions and make a handsome annual profit in so doing.

The opinions of prominent men in England and Scotland who have been identified with the iron business for a generation can be summarized as follows: The warrant system works beneficially in every respect to both the producer and consumer. Through it the maker, even in dull times, finds a ready market for that portion of

his product which is not taken promptly by the consumer or dealer. Through it the consumer is brought, in effect, face to face with every seller, be he producer, dealer or investor, and is thus able to buy to the best possible advantage. The producer who anticipates a decline may sell his product for months or years ahead, take out warrants for it as made and collect cash for his warrants as presented. The consumer, if he anticipates an advance, may provide for his requirements for months or years ahead with certainty that the iron will be delivered to him immediately on presentation of his warrant. It has all the advantages of the syndicate system without its disadvantages, and at the same time allows free scope to individual opinion and enterprise. It is in fact a balance wheel to the whole trade.

The system is not forced or artificial. It is of natural growth, built up by the free and untrammelled working of all the elements through an experience of centuries. Neither party controls it. It does not tie the hands of any element. It is not maintained by any agreements which must be held together by forfeits and penalties. It has nurtured a body of strong, vigorous, self-sustaining producers and consumers. Its existence and growth have depended on its usefulness to the producer and consumer alike, and its continued existence for 60 years without change while constant changes have taken place in the systems of other countries is the best evidence that it meets the requirements of all the interests connected with the iron business. Above all, it is an effective means, and the only means, through which large reserve stocks can be accumulated without depressing prices. It is, in short, a working out, on sound and natural business principles, of the "ideal system" pictured in the opening of this paper.

#### American Methods of Selling Iron.

The pig iron business of the United States has been of such sudden growth that it has not had time to crystallize into a system. The methods of to-day are simply what changing conditions and necessities have made them. In 1840 the total production was but 290,000 tons; at that time the iron was sold by furnace companies. Twenty years later it had only increased to 820,000 tons and was still sold largely by the producer, but in the interim, through various causes, such as needy producers being obliged in dull times to pledge their iron for advances in money or supplies, the trade in the large cities had drifted partly into the hands of wholesale dealers in merchandise. The iron so pledged was first shipped from the furnace to the merchant, who hauled to yard and stored it, which necessitated a second hauling and shipment when it was finally sold to the consumers. This double handling added greatly to the expense, and the merchant having other business gave only incidental attention to selling iron. The selling business, being only half done, was poorly done.

Later on the merchant's portion of the business went over to commission men, in consequence of the latter being able to give their whole attention to selling, but it was not until the commission agents abandoned the system of double handling, and inaugurated the system of making sales, to be filled by shipment directly from the furnace to the consumer, that the makers gave up selling it themselves and turned the business over entirely to the commission agents. When this method became general the makers had agents in each important distributing center, and confined these agents to the territory most easily reached from such center. The number of agents was small and each one represented several different brands. Under this method the competition was greatly reduced, and was much less destructive to profits than when the makers sold part of their own output. There were at this period some 600 producers, and yet the competition was confined to from two to half a dozen agents in each territory.

Later on, when the agents became stronger financially and were able to aid their principals, these stronger concerns secured exclusive agencies, with authority to sell in all territories; this increased the competition greatly, as each territory was invaded by the agents from several other territories; the agents were compelled to employ many traveling salesmen in order to cover the larger fields, thus their own expenses were increased to such a degree that their business yielded but little profit. This has resulted in the agents taking on other staples, such as coal, coke and the manufactured products of iron and steel, and more recently in becoming buyers and sellers on their own account, as well as becoming interested as producers. In some important markets like Pittsburgh the iron commission agents have already disappeared and been replaced by the dealers.

By these changes the American methods are gradually working more nearly the British system, under which the iron is handled principally by dealers, and it is a notable fact that the largest increase in business among iron sellers in this country has been with those who have been the largest buyers of warrants and iron on their own



account; the fact of having something of their own on which they could make instant quotation giving them a great advantage over those who must consult a principal. A business must have some independence to insure its growth and permanence; the commission iron business, which is necessarily dependent on both buyers and sellers, has no independence and is always hampered.

During all these changes in the American methods many efforts have been made to form associations in the United States, similar to the German syndicate system, but what has been practical in a country of 212,000 square miles, where the interests of all producers were similar, has been impossible in a country of 3,600,000 square miles, where the interests of the producers were so conflicting and varied.

At the present time such associations or syndicates are prohibited by United States law.

Thus for 60 years, through constant changes, the American producer has been struggling for some satisfactory method of marketing his product, and if, during that 60 years, there has been one producer or one consumer who has been satisfied with the methods in vogue he has failed to make himself known to the world. We hear of furnace companies building works to consume their product, because they cannot sell it to advantage, and we hear of consumers building furnaces to make their pig iron, because they cannot buy it to advantage, but we hear of no one who is satisfied with conditions as they are. The methods in vogue have given to the American iron business only the experience of constant suffering, seven years when the makers are suffering for buyers, and two years when the consumers are suffering for sellers. During all this time the iron business of Great Britain has been conducted under one system, and during ten years of correspondence with and a month spent among the iron men of that country, we have never encountered one who did not consider their system a benefit to both producers and consumers.

Next to a good government there is nothing so important to the business welfare of any progressive nation as an ample supply of iron and stability in its price. Any condition which causes an advance of 100 per cent. in the price of any important staple is an evil; such an advance in the price of pig iron, the staple on which our country most depends for its growth in wealth and power, is a calamity. All other things advance in sympathy until they reach a figure which every thinking man knows cannot last; the greater the advance the greater must be the decline, and the more disastrous must be the depression which follows. Does any one believe that the advances in all commodities would have reached the present enormous figures if the advances in iron during the last 12 months had been confined to 10 or 15 per cent.? Keep the price of iron within reasonable bounds and you keep everything within bounds. Let us have investors, dealers and speculators to buy the surplus in dull times and it will rarely, if ever, go as low as cost again. Let us have the reserve stock which these added elements will accumulate to supply us in active times and it will never again go up to such enormous figures.

The principal argument used against the adoption of the warrant system by its opponents in this country is that the introduction of speculation into the iron business will increase the fluctuations in its price and yet statistics show directly the opposite effect has attended the introduction of all other articles to exchange dealings in the United States. Let us see if this has not also been the effect upon iron in Great Britain. To answer this question we will take the official quotations of pig iron on the Glasgow Exchange, the birthplace and home of the warrant system, in contrast with the official quotations of the Cincinnati Chamber of Commerce, which most nearly represent the average price in this country, which had no warrant system during the period covered by the comparison.

When the price of iron reached \$50 per ton in Cincinnati in 1854 it represented an advance of 163 per cent., the advance in Glasgow at same time was 45 per cent. When iron reached \$80 per ton in Cincinnati in 1864 it represented an advance of 344 per cent., the advance in Glasgow at same time was 37 per cent. When iron advanced to \$59 in Cincinnati in 1872 it advanced to but \$34.50 in Glasgow. When iron reached \$44 in Cincinnati in 1880 it represented an advance of 125 per cent., the advance in Glasgow at same time was 60 per cent. The main argument against the system has therefore no foundation to stand upon.

With the great advantages afforded by the British system, and the disadvantages caused by our want of system, it may seem strange that the warrant system was not adopted in this country 40 years ago, but every business, like every individual, must go through a period of development, and this takes time and experience. It is no more possible for a small or new business to adopt mature methods of administration than it is for a youth to assume the mature manners of the adult.

The iron business of Great Britain is several hundred

years old; it was a strong, vigorous adult when the iron business of America was a puny infant. The methods in vogue for the last fifty years in the iron business of America had been tried and were discarded by Great Britain more than half a century ago. The exchange system is simply the final refuge of each business as it expands and discards old and inadequate methods. It is in effect simply creating a negotiable paper representative of the article to be dealt in and then bringing, at a given time and place, every one who wishes to buy face to face with every one who wishes to sell that article. Human ingenuity has not yet discovered a method more nearly perfect for controlling a business of great magnitude.

Every business which reaches great magnitude necessarily comes to the warehouse and exchange system. It is the only method which has stood the test of time and which is surely adopted after all other experiments have failed and been abandoned. The plan of accumulating stocks in time of plenty, instead of slaughtering them, has been taken advantage of by dealers in almost everything except pig iron. Only a few years ago there were seasons when the receipts of fruit in the city of New York were sometimes so great within a few days, and the prices were forced so low, that the fruit hardly brought the amount of freight; this in turn discouraged shipments and then would succeed a season of great scarcity. It took experience and many years of loss to rectify this condition, but finally it resulted in the establishment of fruit exchanges and storage warehouses, where fruits were kept at a temperature just above the freezing point, where chemical change ceased and thus it was preserved in a perfect condition for months. The result is that prices are now more stable, the public is better served and the profits of both producers and dealers are more uniform and remunerative. Thus, after many generations of waste, we have finally developed a fruit system. It does not limit production of fruit, and no matter how much arrives in a short time only what the market will naturally take is offered and the remainder goes to build up a reserve supply. So we find vegetables, eggs, butter, fish and poultry, as well as grain, cotton, provisions, coffee and many other articles, getting the benefit of a system, while iron is still left to drift in a haphazard way.

The American warrant system has made a small beginning, but it has demonstrated the fact that it constantly absorbs surplus iron during the dull periods and steadily gives up this stock when the country most needs it.

But warrant yards are only part of the warrant system; to make it complete, there must be daily exchange dealings of such magnitude that buying and selling orders can always be promptly executed.

The system has been a benefit to those who have given it a fair trial. It has in many instances been the only channel through which needy furnace companies have been able to get money in times of great stringency, and has saved them from being obliged to blow out or bank their furnaces.

The reserve stock accumulated by this system, although small, has furnished the iron to tide over many a manufacturing concern during the last year, which, without it, must have suspended work at times when it would have caused them loss and great inconvenience. It has been of the most pronounced benefit to such dealers as were the first to take hold of it. The growth of their business has been almost in exact proportion as they have dealt in warrants, not only in the domestic but in the export business. In fact no one appears to have made a success in the export business except those who have dealt in warrants.

For more than a century the commercial world has looked first to Great Britain for everything connected with iron. With her lower cost and large reserve stock she has been able to maintain a stability in prices and supply which has enabled her to control the markets of the world. The United States has for several years been the cheapest iron producing country in the world, and should have begun making large exports of iron long before she did, but for ten years her reserve stock has been less than 23 days' consumption. If she is in the future to have uninterrupted control of the iron markets of the world she must carry enough stock to give stability to prices. The higher cost and reduced product of Great Britain has prevented her accumulating her usual reserve during the last few years and will prevent this in future. The world's reserve supply in the future must be accumulated in the United States. The introduction of the warrant system in this country has, therefore, been most timely.

British dealers have for eight years been among the largest holders of American warrants, and the introduction of them to exchanges in Great Britain is already under discussion. If dealings in American warrants become centered in London or Glasgow instead of New York, British dealers will still control the iron markets

of the world, even after the principal supply comes from this country.

Since the dawn of civilization the importance of storing up stocks of such things as were necessary to the life, defense and well being of man has been recognized by all nations and people. The Scriptures, from Genesis to Revelation, abound in accounts of the immense store houses and store cities builded and maintained by the great nations of ancient times. They not only gathered in the months of harvest sufficient to supply the people until the next harvest, but they stored up in years of plenty sufficient to provide for the years of famine. This wise provision ranked first in importance in all temporal affairs.

### The French Reciprocity Treaty.

WASHINGTON, D. C., February 6, 1900.—The advocates of the ratification of the French reciprocity treaty, including the officials of the administration having the matter in hand and the representatives here of the chief industries to be benefited by this particular convention, have decided to make a final effort to save this treaty, which had been practically abandoned, and have decided upon an important change of policy. It is proposed to segregate this treaty from the six other treaties in the hope of pulling it through by relieving it of all the embarrassments which handicapped it through the opposition growing out of the unpopularity of certain provisions of the other treaties. The Argentine treaty has been abandoned on the ground that the objections to the reduced duties on wool and hides which it provides for are too strong to be overcome in time to permit the ratification of this treaty, which will fail by limitation unless approved on or before next Saturday, February 10. The treaties with the British West Indies, all but one of which expire before March 24, have been relegated to a position of secondary importance and will be abandoned if that course seems necessary to save the French treaty. Every energy, therefore, is to be concentrated upon the ratification of the treaty with France prior to March 24, when it will fail by limitation.

In spite of the active work now being done in behalf of the French treaty the task of securing its ratification will be a most difficult one and one calling for much diplomacy on the part of its friends. Robert P. Porter, who has served as a special commissioner to Cuba and Porto Rico, and who is thoroughly familiar with the reciprocity treaties, is here working in behalf of the French treaty and is making an active canvass of the Senate with a view to estimating the strength that can be relied upon if the convention is brought to a vote. Mr. Porter has caused to be prepared an elaborate schedule, which is intended to correct the popular misapprehension regarding the effect of the cuts proposed by the French treaty. The correspondence of Senators and Representatives indicates that it is believed, even by many well informed business men, that the proposed reductions are to be calculated on a per centum basis and not on the basis of existing duties. In other words, it appears that certain manufacturers of metal articles coming within the basket clause of the Dingley act, on which the present duty is 45 per cent. ad valorem, are under the impression that, as the French treaty provides a reduction of 15 per cent. on this class of goods, the rate of protection will be cut to 30 per cent. in the event of the ratification of the treaty. This of course is an error, as the 15 per cent. reduction will be calculated on the basis of the existing 45 per cent. rate, leaving the protection on all articles included in the basket clause at 38.25 per cent. ad valorem. Mr. Porter's schedule illustrates the cuts made on all paragraphs affected by the treaty, demonstrating them to be on the average less than one-half as much reduction as is supposed by those who labor under the misapprehension referred to.

The cut of 10 per cent. in the cutlery schedule, including paragraphs 153 and 155, will in no case reduce the duty to less than 38.25 per cent. ad valorem, for the reason that the Dingley act provides that the specific or combined duties on these goods shall in no case be less than the equivalent of 45 per cent. ad valorem.

On the articles included in paragraphs 160 to 165 inclusive of the Dingley act, including nails, spikes, tacks, needles, &c., the reduction proposed by the French treaty is 15 per cent. ad valorem, the largest reduction made on any class of metal manufactures, all other reductions, with the exception of watch makers' articles, clocks, &c., being but 10 per cent. or less. Manufactures of metal threads or tinsel wire are reduced 5 per cent.

The active work being done by Mr. Porter and by Special Commissioner Kasson, who has returned to Washington after an absence of a fortnight, has served to modify the views of several prominent Senators, and will offset, to some extent at least, the pressure which certain manufacturers are bringing to bear against the treaty. It may therefore be said that although this convention is

in a very precarious situation all hope for its ratification has not disappeared. As it must be ratified prior to March 24 it is apparent that only the most effective work on the part of its friends can bring about this result.

W. L. C.

### A New Coal Mine Scale.

On Friday night, February 2, the delegates from the United Mine Workers and the Interstate Operators' Association, in session at Indianapolis, Ind., adopted a scale which is a compromise between the first demand of the former and the first offer of the latter. The scale, as referred to the joint conference, is as follows:

That an advance of 14 cents per ton of 2000 pounds for pick mined screen coal shall take effect in Western Pennsylvania thin vein and in the Hocking district, the basing district of Ohio, and the block coal district of Indiana. That the Danville district, the basing point of Illinois, shall be continued on an absolute run of mine basis and that an advance of 9 cents per ton over present prices be paid on the district named. That the bituminous coal district of Indiana shall pay 49 cents per ton for all mine run coal loaded and shipped as such. All other coal mined in that district shall be passed over a regulation screen and be paid for at 80 cents per ton of 2000 pounds for screen lump.

That the screen hereby adopted for the Ohio, Western Pennsylvania and the bituminous district of Indiana shall be uniform in size, 6 feet wide by 12 feet long, built of flat or Akron shaped bar of not less than  $\frac{5}{8}$  inch surface, with  $1\frac{1}{4}$  inches between the bars free from obstructions, and that such screen shall rest upon a sufficient number of bearings to hold the bar in proper position.

The block coal district of Indiana may continue upon the demand of the bar screen, the screen to be 72 feet of uniform size,  $1\frac{1}{4}$  inches between bars, free from obstructions, and that such screen shall rest upon a sufficient number of bearings to hold the bars in proper position.

That the differential between the thick and thin mines of the Pittsburgh district be referred to that district for settlement.

That the price of machine mining in the bituminous district of Indiana shall be 18 cents per ton less than the pick mining rate for screen lump coal when punching machines are used and  $12\frac{1}{2}$  cents per ton less than pick mining rate when chain machines are used. When coal is paid for on run of mine basis the price shall be 10 cents per ton less than the pick mining rates when chain machines are used. That the machine mining rate in the Danville district, the basing point of Illinois, on both punching and chain machines be 39 cents per ton.

That the section mining rate in the thin veins of the Pittsburgh district and Hocking, the basing district of Ohio, for shooting the cutting shall be advanced 9 cents per ton, and the block coal district of Indiana shall be advanced  $11\frac{1}{2}$  cents per ton.

That the mining rates in the Central district of Pennsylvania be referred to that district for adjustment.

That the advance on inside day labor be 20 per cent., based on the present Hocking Valley scale with the exception of trappers, whose compensation shall be \$1 per day.

That all narrow, day work and room turned shall be paid a proportionate advance with the mining rate.

That internal differences in any of the States or districts, both as to price or condition, shall be referred to the State or districts affected for adjustment. The above scale is based upon an eight-hour work day.

The report was adopted. The scale provides for a general advance of 21.21 per cent., and is satisfactory to operators and miners of Ohio, Pennsylvania and Indiana, but not of Illinois. Patrick F. Dolan, president of District No. 5 of the United Mine Workers, has called a meeting of the district delegates to meet in Pittsburgh February 13.

A motion was carried to meet at Columbus on the second Tuesday in February, 1901.

The Fort Pitt Gas Company of Pittsburgh have purchased the stock of the Jefferson Gas Company, who supply light and fuel for the American Iron & Steel Works of Jones & Laughlins, Limited, and were owned by that concern. The price paid is said to have approximated \$250,000. The new owners assumed control of the property last week. The following officers and directors have been elected: Joseph W. Craig, president; S. H. Anderson, secretary; E. P. Mellon, treasurer; P. L. Craig and J. C. Fisher. Within the past year the Fort Pitt Company have absorbed the following companies: New Castle Gas, Rochester Light & Heat, Independent Gas, Sewickley Ohio Valley Gas and the gas interests of the Bridgewater Gas Company.



**New York, Thursday, February 8, 1900.**

DAVID WILLIAMS COMPANY,	-	-	-	-	-	-	PUBLISHERS.
CHARLES KIRCHHOFF,	-	-	-	-	-	-	EDITOR.
GEO. W. COPE,	-	-	-	-	-	-	ASSOCIATE EDITOR, CHICAGO.
RICHARD R. WILLIAMS,	-	-	-	-	-	-	HARDWARE EDITOR.
JOHN S. KING,	-	-	-	-	-	-	BUSINESS MANAGER.

We print elsewhere an account of the Talbot continuous open hearth steel process as developed at the Pencoyd Iron Works, which, we believe, marks a very important event in steel manufacture. Benjamin Talbot's invention, theoretically sound, has now been proven practicable by many months of working under commercial conditions. It need hardly be said that in days like these no metallurgist is allowed by the management to indulge in experimental work when his plant is available for production along the usual lines. Mr. Talbot depends for rapid and successful work upon the oxidizing power of a basic slag, the reaction possessing an energy and a speed which approaches that of the Bessemer blow. The process is continuous in the sense that there are frequent additions of molten pig, preferably to be drawn from the blast furnace, and a corresponding pouring of a part of the steel produced. With only moderate fluctuations in the temperature of the furnace, there is less strain on the furnace, while the withdrawal of heats of moderate weight makes it possible to greatly increase the size of the furnace without incurring the dangers and drawbacks of handling steel in enormous quantities. Mr. Talbot's process gives a fresh impetus to the triumphant recent development of the basic open hearth furnace with all the great economic changes which such progress involves in the availability of raw materials hitherto only serviceable within relatively narrow limits.

### New Enterprises and Present Profits.

It is not surprising that promoters who are seeking to secure capital make the most of the opportunities which the large profits of iron and steel works give them. It is their business to be sanguine, and they can sincerely make a very good case and back it up with excellent testimony from authorities of high standing in the iron trade.

Generally speaking the undertakings which have recently been started and are now being brought out may be classified in two groups, so far as outside capital is called upon to participate. The first embraces the revival of old plants which were forced into idleness during the long depression. A strong argument in their favor is that little or no time need be wasted in getting them into shape for production, although incidentally it may be remarked that that time is usually underestimated. When the revival of such works is treated frankly as a gamble dependent upon the longevity of the boom the enterprise rests upon its proper foundation. In a good many cases it can be shown that with intelligent and vigorous management the cost of repairs, &c., can be gotten back within a moderate period and with reasonable certainty, and that there is a good chance for a neat turn.

We have encountered cases, however, some of them flagrant, in which an indefinite continuance of present top notch profits is assumed. The presentation of a scheme upon such a basis should condemn it offhand.

The second class refers to entirely new undertakings, which originate in different ways. A strong argument used to promote some of them is that this country is on the eve of great developments, both as to the home consumption of iron and steel and as to its future position in the world's markets. It is urged, too, that the powerful interests now so largely controlling the industry are committed to a scale of earnings which will force them to a level of prices considerably above those ruling in 1897 and 1898.

Other promoters single out one of the consolidations as a shining mark for attack, claiming that a short, sharp struggle is all that is necessary to unload on the victim at a good profit.

Finally we find isolated instances of new works under construction or contemplated by men long connected with the business who return to it with the purpose of continuing their life work, with the ambition to put into an ideal new plant the experience accumulated in years. Of these, however, there are but few thus far.

All of those who are starting now suffer from the fact that the capital investment in times like these must necessarily be much heavier than it would be if construction were carried on in normal times. They are taking the chances of getting ready in time to secure a share of abnormal profits as an offset against high cost of installation.

But after all the most important increase in capacity will be due to the improvements which nearly every live concern are now making. Against these investments outside capital has only a meager chance.

### Shop Extension.

At the present time many manufacturers are confronted with the question of shop extension—whether or not to make additions or whether or not to build entirely new on a new site. The conditions now prevalent in the machinery trade and their probable continuance are not considered in the following remarks. But if the long established manufacturer is to do business at the

present rate he must provide increased facilities. His quarters are too restricted and far too inconvenient, the result being a cost of manufacturing which is excessive when comparison is made with what could be accomplished in surroundings of better arrangement. Additions to old plants certainly provide greater space, but in most cases they are only illustrations of patching. The whole is not symmetrical and must of necessity be wanting in many of the characteristics now deemed essential to economical production. Many concerns are contemplating the complete abandonment of their old buildings and the erection of new ones on sites amply sufficient to provide for growth in the future. No rule covering more than an individual plant can be formulated for the extension of old establishments—each has its own peculiarities and is governed by them. But the entirely new plants present problems more or less subject to a general solution.

When the concern has several departments, whether strictly independent of or more or less dependent upon each other, it becomes necessary to provide for the separate growth of each. What we may call the "chess-board" plan has been offered as an easy way out of the difficulty. It may be essential to have at least two of the departments as centrally located as possible, with the others grouped about them. These are the power station and foundry with their adjuncts. Placing these on a castle square—considering the ground as a chessboard—extension is possible in two directions. The several departments are placed along one side, when their number can be increased at will and either of them can be extended as may be required without in any way interfering one with another. Locating the foundry and engine rooms on a king's square insures independent growth in three directions and at the same time maintains the central location of these two. Both of these plans provide for the natural enlargement of track and handling facilities in accordance with the demands of the buildings. Both methods certainly tie up and render unproductive large ground spaces, and for that reason they are only to be considered in localities where land is comparatively cheap.

About October 1 Rogers, Brown & Co. offered to pay \$50 to any one who during that month would send an estimate of the total production of pig iron in the United States for the year ending December 31, 1899, that would prove to be nearest the actual output as shown by the report of the American Iron and Steel Association. They received numerous estimates from all sections of the country, from Maine to Texas and Mexico. The range of estimates was from 3,333,333 tons up to 109,500,000 tons. Most of them, however, were in the 13 millions. The total production as given by the American Iron and Steel Association was 13,620,703 gross tons, and the nearest estimate was sent by S. M. Pagan of Philadelphia, whose figures were 13,620,000, and to him the \$50 has been paid.

Within a short time the Pressed Steel Car Company of Pittsburgh will have regularly established offices in Europe. Last week Chas. T. Schoen, president of the concern, and Frank N. Hoffstot, a member of the Board, sailed for London, where they will meet officials of the London & Northwestern Railway by request, on a proposition to build several thousand freight carriers of special design for that road. The other part of their mission to Europe is to look up a suitable location for the European offices of their company. The Pressed Steel Car Company have received an order for 50 steel ore cars of 100,000 pounds capacity for the Great Northern Railway. They will be similar in design to those built for this road last year. The same road have ordered 200 ore cars from the Haskell & Barker Car Company. The Chicago, Lake Shore & Eastern Railroad have placed an order for 150 cars with the Pressed Steel Car Company. They will be self clearing, with a capacity of 100,000 pounds. The Philadelphia & Reading Railroad have ordered 500 wooden box cars of 60,000 pounds capacity, with steel under frames from the Pressed Steel Car Company.



## A Further Increase in Pig Iron Production.

A resumption on the part of a considerable number of blast furnaces, notably in the South, which were banked on January 1, would have very considerably increased production, were it not for the fact that many stacks East and West did not come up to their ordinary record, owing to frequent banking. Still there was an increase in the total pig iron production during January, which swells the rate with which we entered February by about 4000 tons per week. We are now exceedingly close to the enormous total of 300,000 tons per week.

The weekly capacity of the furnaces in blast on February 1 compares as follows with that of preceding periods:

	Furnaces in blast.	Capacity per week. Gross tons.
February 1, 1900.....	296	296,014
January 1.....	280	294,186
December 1, 1899.....	283	296,959
November 1.....	277	288,522
October 1.....	265	278,650
September 1.....	257	267,335
August 1.....	244	267,672
July 1.....	237	263,363
June 1.....	220	254,062
May 1.....	217	250,095
April 1.....	205	245,746
March 1.....	192	228,195
February 1.....	195	237,639
January 1.....	200	243,516
December 1, 1899.....	195	225,528
November 1.....	196	228,935
October 1.....	192	215,635
September 1.....	186	213,048
August 1.....	187	206,777
July 1.....	185	216,311
June 1.....	190	225,398
May 1.....	194	234,163
April 1.....	194	238,339
March 1.....	193	234,430
February 1.....	184	228,338
January 1.....	188	226,608
December 1, 1899.....	191	226,024
November 1.....	183	213,159
October 1.....	171	200,128
September 1.....	161	185,506
August 1.....	152	165,378
July 1.....	145	164,064
June 1.....	146	163,380

Charcoal Furnaces in Blast February 1, 1900.

Location of furnaces.	Total No. of stacks.	No. in blast.	Capacity per week.	No. out of blast.	Capacity per week.
New England.....	11	3	262	8	730
New York.....	2	2	195	0	0
Pennsylvania.....	13	2	120	11	550
Maryland.....	4	1	120	3	440
Virginia.....	4	1	48	3	290
Ohio.....	3	2	165	6	395
Kentucky.....	3	0	0	3	200
Tennessee.....	6	4	834	2	200
Georgia.....	2	2	612	0	0
Alabama.....	7	4	1,252	3	240
Michigan, Missouri and Wisconsin.....	16	10	4,145	6	2,688
Texas.....	4	1	150	3	740
Totals.....	80	32	8,004	48	6,473

As compared with previous months the record of active charcoal furnaces stand as follows:

	Furnaces in blast.	Capacity per week.
February 1, 1900.....	32	8,004
January 1.....	30	7,457
December 1, 1899.....	30	7,511
November 1.....	29	7,113
October 1.....	25	6,222
September 1.....	24	5,665
August 1.....	22	6,189
July 1.....	20	6,018
June 1.....	16	4,943
May 1.....	20	4,846
April 1.....	17	4,777
March 1.....	16	4,330
February 1.....	17	4,967
January 1.....	20	6,026
December 1, 1899.....	18	6,018
November 1.....	20	5,947
October 1.....	20	5,732
September 1.....	21	6,293
August 1.....	22	6,459
July 1.....	19	5,647
June 1.....	20	6,762
May 1.....	18	6,571
April 1.....	16	5,716
March 1.....	16	5,470
February 1.....	14	4,734
January 1.....	16	5,442
December 1, 1899.....	19	5,061
November 1.....	19	4,656
October 1.....	20	4,636

Among the coke furnaces that were blown in during January are Warren in New Jersey, one Bethlehem, one

Lehigh Iron & Steel and Macungie in the Lehigh Valley, Everett in Central Pennsylvania, Cranberry in North Carolina, one Central in Northern Ohio, and Gadsden, Philadelphia and Taladega in Alabama. During January there were blown out for repairs one of the Allentown Rolling Mill furnaces, one Lackawanna, one Bay View at Milwaukee, and Embreville in Tennessee.

Coke and Anthracite Furnaces in Blast Feb. 1, 1900.

Location of furnaces.	Total No. of stacks.	No. in blast.	Capacity per week.	No. out of blast.	Capacity per week.
New York.....	13	6	6,992	7	3,650
New Jersey.....	7	5	3,461	2	1,200
Spiegel.....	2	2	450	0	0
Pennsylvania:					
Lehigh Valley.....	27	23	11,941	4	1,335
Spiegel.....	1	1	110	0	0
Schuylkill Valley.....	15	10	7,154	5	3,492
Upper Susquehanna.....	5	3	2,261	2	1,550
Lower Susquehanna.....	10	10	3,319	0	0
Lebanon Valley.....	13	11	8,294	2	934
Pittsburgh District.....	29	29	61,671	0	0
Spiegel.....	1	1	3,080	0	0
Shenango Valley.....	15	15	20,849	0	0
Western Pennsylvania.....	18	15	19,276	3	1,940
Spiegel.....	1	1	1,068	0	0
Maryland.....	4	3	5,804	1	175
Spiegel.....	1	1	520	0	0
Wheeling District.....	10	10	13,134	0	0
Ohio:					
Mahoning Valley.....	14	12	18,736	2	2,000
Central and Northern.....	11	11	16,439	0	0
Hocking Valley.....	2	2	950	0	0
Hanging Rock.....	12	11	5,155	1	130
Illinois.....	16	15	28,747	1	1,200
Spiegel.....	1	1	916	0	0
Minnesota.....	1	1	900	0	0
Wisconsin.....	4	3	2,467	1	1,000
Missouri.....	2	1	875	1	850
Colorado.....	2	1	1,150	1	1,000
The South:					
Virginia.....	21	17	10,335	4	2,278
Kentucky.....	5	4	1,670	1	650
Alabama.....	37	27	22,221	10	6,600
Tennessee.....	13	11	6,870	2	900
Georgia.....	1	0	0	1	500
North Carolina.....	2	1	175	1	352
Totals.....	316	264	290,010	52	31,626

In comparison with previous months the record of the coke and anthracite furnaces stands as follows in gross tons:

	Number in blast.	Capacity per week.
February 1, 1900.....	264	290,010
January 1.....	250	286,729
December 1, 1899.....	253	289,448
November 1.....	248	281,409
October 1.....	241	272,423
September 1.....	233	261,670
August 1.....	222	261,483
July 1.....	217	257,345
June 1.....	204	249,119
May 1.....	197	245,249
April 1.....	188	240,969
March 1.....	175	223,865
February 1.....	178	232,672
January 1, 1899.....	180	237,490
December 1, 1898.....	177	229,510
November 1.....	176	222,988
October 1.....	172	209,903
September 1.....	165	206,750
August 1.....	165	200,318
July 1.....	166	210,664
June 1.....	170	218,686
May 1.....	176	227,592
April 1.....	178	227,623
March 1.....	177	228,960
February 1.....	170	223,604
January 1.....	172	221,166
December 1, 1899.....	172	220,962
November 1.....	164	208,506
October 1.....	151	195,492
September 1.....	140	180,951
August 1.....	132	161,375

### Furnace Stocks.

The position of furnace stocks, sold and unsold, as reported to us, was as follows on February 1, the same furnaces being represented as in former months. This does not include the holdings of the steel works producing their own iron:

	Sept. 1.	Oct. 1.	Nov. 1.	Dec. 1.	Jan. 1.	Feb. 1.
Stocks.						
Anthracite and						
Coke.....	107,321	93,250	89,709	94,946	107,231	126,418
Charcoal.....	30,500	27,291	21,834	18,747	20,115	21,918
Totals.....	137,821	120,541	111,543	113,693	127,346	148,336

### Warrant Stocks.

We are indebted to the American Pig Iron Storage Warrant Company for the following statement of stocks of warrant iron:

	Sept. 1.	Oct. 1.	Nov. 1.	Dec. 1.	Jan. 1.	Feb. 1.
Stocks.						
Coke and An						
thrachite.....	20,270	14,800	10,300	4,100	3,200	2,800
Charcoal.....	12,400	7,700	6,100	5,200	1,700	1,500
Totals.....	32,600	22,500	16,400	9,300	4,900	4,300

### Central Pennsylvania News.

HARRISBURG, PA., February 5, 1900.—Gradually the iron and steel situation is adjusting itself in this territory. While there is not that snap and vim in the trade that characterized part of last year, there is still sufficient energy in the different branches of the business to justify the predictions of some of the more conservative men that the near future will develop decidedly improved conditions. Thus far in the new year there has been a sort of cautious holding back, not only on the part of the consumers but also among the manufacturers, for different reasons. Prices are being scaled off along certain lines and some contracts have been made at lower figures than those prevailing before the holidays, but there has not been in any sense a slump either in orders or prices. There seems to be plenty of business, but it is waiting the final adjustment of conditions that have been rather unusual since the first of the year. Orders are reported as in process of negotiation, and some of the mills have enough now on their books to insure steady operation for at least six months.

At the Pennsylvania Steel Works the increase of wages for skilled labor, amounting to about 10 per cent., went into effect February 1, but the general increase of 10 per cent. does not take effect until March 1. All the departments of the Steelton plant were in operation during the past week and the output was exceedingly heavy. The car supply was sufficient for the demands during the week, and there was not so much trouble about shipments. As an indication of the crowded condition of the plant and also as showing the serious embarrassment caused by the shortage of coal and coke, an order for steel rails was completed last week that should have gone forward last November. These rails are now stacked in the yards awaiting shipment to the seaboard. There is still a shortage of coke. The extreme cold weather of last week retarded work on the erection of the new machine shop.

The Middletown plant of the National Tube Company, which has been idle during the past month undergoing changes and improvements, resumed operations to day. There is a fair list of orders and the indications are that the large plant will be in full operation for some time to come. The war in South Africa has seriously interfered with the development of the fine pipe trade enjoyed by the American tube mills in that portion of the world. The National Tube Company had established certain lines of trade in that section which were very promising upon the outbreak of hostilities.

The Harrisburg Foundry & Machine Works, operating two plants in this city, have received quite a number of orders during the past week, and both plants are going day and night and on Sunday. It is understood that sufficient orders are in hand to insure a steady run until next fall.

The Central Iron & Steel Company have been operating all their departments and report a reasonable number of inquiries for this dull period. One of the mills, the 89 inch, will be off this week for a few changes in the rolls.

The Lalance Grosjean Mfg. Company are running their plant in this city full time, with plenty of orders to insure steady work throughout the year. General Manager Stanford has just returned from Pittsburgh, where he conferred with several of the larger steel manufacturers.

The Harrisburg Mfg. & Boiler Company have just completed 17 carloads of 20-inch pipe for a company at Honolulu, and began work this week on a South American order of 12 carloads of 20 inch pipe, and the business ahead of the company is ample to keep the plant in continuous operation. The company have many foreign orders and contemplate the erection of a foundry in the near future.

The Harrisburg Pipe & Pipe Bending Company have about completed their new pipe mill and are installing machinery. This company have issued \$100,000 worth of improvement bonds for the purpose of further enlargements of the plant.

The Kelly Automatic Car Coupler Company of this city held their annual meeting Friday and re-elected the present officers. It is said that the company expect an order for 2000 couplers from a leading railroad. The experimental couplers on the Cornwall & Lebanon Railroad are reported as giving complete satisfaction. The company will arrange for the making of several hundred of the couplers by the Whitely Malleable Castings Company, Muncie, Ind., at an early date.

Surveyors have staked off the ground for the new buildings of the frog, switch and signal department of the Pennsylvania Steel Works. Erection of the new plant will begin as soon as the drawings and specifications are completed.

President E. C. Felton of the Pennsylvania Steel Company denies that his company have closed negotiations for the purchase of 125 acres of land between Steelton and Highspire for the erection of several large additional

departments. He says that the company have purchased no land between Highspire and Steelton. An additional frog shop will be located on the Bombaugh farm and he supposes this was the origin of the rumor.

The Pennsylvania Railroad Company are making extensive yard changes in this city and are said to be negotiating for the purchase of the Herr street mill of the Central Iron & Steel Company. It is a muck bar mill and has been operated by the Central Company for several years. The property would be used for additional track room.

S.

### A Plan to Start the Troy Steel Works.

Some time since the Cullen Brothers & Lewis Steel Company were organized under the laws of New Jersey with a capital stock of \$600,000, of which \$100,000 was 6 per cent. preferred stock. Little was allowed to reach the public concerning the plans of this company, whose headquarters were at 45 Liberty street, New York. It develops now that the new firm were backed by the banking house of J. P. Morgan & Co. of New York, and secured an option upon the mining property of Witherbee, Sherman & Co., Mineville, N. Y., in the Lake Champlain district. They have issued a circular to the holders of the securities of the Troy Steel & Iron Company of Troy, in which the announcement is made that it is proposed to increase the capital stock of the Cullen Brothers & Lewis Steel Company to \$17,000,000, of which \$7,000,000 is to be 7 per cent. cumulative preferred stock. J. P. Morgan & Co. offer to issue one share of the preferred stock for each \$100 of the first mortgage bonds of the Troy Steel & Iron Company, the holders of the latter to surrender the common stock which they received as a bonus. It is stated that the issue of these bonds outstanding is about \$1,700,000. Besides this a certain moderate amount of Troy debentures are outstanding, issued for money advanced to operate the plant. These debentures are to be exchanged also for the preferred stock of the Cullen Brothers & Lewis Steel Company.

It is reported that the plan proposed for starting the Troy plant, in conjunction with the Witherbee mines, must be carried through before the 16th inst., since the options expire on that date. The impression is that the reorganization will be carried through.

**The American Appraisal Company.**—A pamphlet has been issued by the American Appraisal Company of Milwaukee, Wis., the Eastern office of which is at 804 Park Row Building, New York, calling attention to the business which the company have been developing. This consists in preparing inventories and invoices of manufacturing plants so that insurance may be intelligently placed and that in the case of adjustments of losses by fire sufficient proof is at hand. The invoice consists of a piece-bill or bill of quantities of all the material used in the construction of each and every building composing the plant, with prices attached showing cost of material, and labor in assembling same and constructing the buildings as they stand, including painting and items of every kind whatsoever, the cost of excavating for foundations, cellars, and a complete and classified list of all machinery, engines, boilers, pumps, shafting, pulleys, belting and tools of every kind whatsoever used in and about such plant, with prices attached, showing cost of same at present market rates, including cost of setting up. In fact, the invoice is a complete priced and classified record of each and every item of any kind whatsoever composing or contained in such plant. The inventory is an exact duplicate of the invoice without prices attached.

**The Maryland Steel Company.**—Officers of the Maryland Steel Company of Sparrow's Point, Md., deny that negotiations are pending for the sale of the plant to Henry C. Frick and associates of Pittsburgh, Pa. They state that the works are not for sale.

The Avery Stamping Company of Cleveland, Ohio, have added quite largely to their tinning plant, and are now in a position to do tinning for outside parties.

At Pittsburgh the American Steel & Wire Company have bought another tract of land, containing about 40 acres, on Neville Island, for which they paid about \$80,000.

The Miller Engineering Company of Pittsburgh have been granted a charter with a capital stock of \$50,000. The new concern will take over the business of Miller Brothers & Co., engineers and contractors, with present headquarters in the Tradesmens' Building, Pittsburgh, Pa.



## MANUFACTURING.

### Iron and Steel.

The Crown Steel Company of New York have been incorporated, with a capital stock of \$2,000,000, by H. B. Chapman, W. L. Ruston, E. B. Fittler, H. C. Balcom and F. D. Livermore.

At the recent stockholders' meeting of the Spearman Iron Company, Sharon, Pa., the following officers were elected: Joseph Forker, president; John Phillips, vice-president; J. J. Spearman, treasurer and general manager.

At the January stockholders' meeting of the Rome Tubing Company, Rome, N. Y., the following officers were elected: President, W. R. Huntington; vice-president, J. G. Bissell, secretary and treasurer, J. S. Haselton.

The Zanesville Iron Company, Zanesville, Ohio, have been incorporated, with a capital of \$100,000, for the manufacture of iron and steel. The incorporators are S. B. Wells, A. S. Farber, L. F. Spangles and others.

The C. F. Evans Steel & Iron Company of Columbus, Ohio, have changed their name to the C. W. Evans Steel & Iron Company.

The South Bend Malleable Iron Company of South Bend, Ind., have been incorporated with a capital stock of \$75,000. The directors are Clem. Studebaker, John M. Studebaker and Edward Y. Mauzy.

The Charlotte Steel & Iron Company of New York City have been incorporated with a capital of \$100,000. The directors are Wm. A. Mears and J. B. Petersen of Philadelphia, and H. A. Darnell, E. R. Holden and J. Holden of New York City.

The Jefferson Iron Company of Oak Hill, Ohio, have been incorporated, with a capital of \$25,000, for the manufacture of pig iron. The incorporators are T. J. Hughes, J. C. James, J. P. Jones, E. J. Jones and others.

The American Tin Plate Company placed another large engine in their works at Ellwood City, Pa., last week. All conditions are favorable to this works starting within the next week and the employees here seem confident that the shut down is almost over. The shipping department has been working steadily during the present close down and most of their stock is now exhausted.

The new 40 x 65 addition to the Frankfort Steel Works, at Ellwood City, Pa., is nearing completion. This new department will be fully equipped with new machinery.

The Cherokee Furnace, at Cedartown, Ga., was blown in on the 10th ult. by the Alabama & Georgia Iron Company on charcoal iron.

Edward E. Erikson, consulting and contracting engineer, Conestoga Building, Pittsburgh, has received a contract for the remodeling of the entire plant of the Virginia Iron, Coal & Coke Company, Middlesborough, Ky. Included in this work is the building of two new soaking pit furnaces and the remodeling of the seven 25-ton open hearth furnaces which the plant contains. Mr. Erikson is also rebuilding the gas producers in the plant, by which their capacity will be considerably increased. The whole plant will be remodeled throughout, for which Mr. Erikson has the entire contract. The Virginia Iron, Coal & Coke Company are successors to the Watts Iron & Steel Syndicate, Limited, who formerly owned the plant at Middlesborough.

James M. Bailey, doing business as Phillips, Nimick & Co., Sligo Rolling Mills, Pittsburgh, has brought suit against M. D. Wymer to recover \$4717.01 for iron plates furnished for a plate glass works.

The plant of the Briggs Rolling Mill Company of Findlay, Ohio, which has been idle for some years, is being put in condition for operation.

The Hollidaysburg Iron & Nail Company of Hollidaysburg, Pa., have been granted a charter, with a capital of \$100,000. We understand that the new concern have acquired and will put in operation the cut nail factory in that place, which has been idle for some time.

The Wilkes Rolling Mill Company, Sharon, Pa., who heretofore have made only muck bar, intend to add a sheet mill to their plant, plans for which are being prepared.

The cold weather interfered to some extent with output at the Youngstown works of the National Steel Company, Youngstown, Ohio, last month. About 40,444 tons of billets, sheet and tin bars were turned out. The Howe Scale Company are erecting a number of large scales at this plant, consisting of one 175-ton 85-foot track scale, one 100-ton 46 p. track scale, two 60-ton 15-foot hot metal scales, four 20-ton ore car charging scales, one 60-ton 10 p. pit scale, two 15-ton limestone hopper scales. These scales are all of the suspension type and erected on steel structures. The 175-ton 85-foot scale is said to be the largest scale of its type that has ever been built in the world. It is to be used to weigh 60-foot rails on two flat cars at one time.

### Machinery.

J. B. Chapman & Co., Springfield, Mass., who have a well equipped brass foundry and machine shop and a corps of workmen trained to the finest class of government work, issue a circular calling attention to their facilities and announce that

they are prepared to make contracts for the manufacture of machines complete or parts of same, and say they have a large variety of patterns of their own and by using these can frequently save customers the cost of same. They make a specialty of brass castings, brass rolls, pump linings and copper work.

The Anderson Malleable Iron & Mfg. Works of Anderson, Ind., have been incorporated, with a capital of \$75,000, by John L. Forkner, Maurice S. Howe, J. B. Latchem and others.

The McLanahan Stone Machinery Company of Gayport, Pa., have been incorporated, with a capital of \$100,000, for the manufacture of boilers, engines, &c. The incorporators are J. K. McLanahan, A. T. Stone, J. K. McLanahan, Jr., and others.

The Bessemer Gas Engine Company, Grove City, Pa., manufacturers of Bessemer gas engines, Bessemer gas cylinders and the Caruthers-Fithian gas engine clutches, are erecting a new building to be used for the manufacture of friction clutches and cut off couplings of all styles and horse-power. The building is of brick, 150 x 36 feet in size, and will be equipped with latest improved machinery. The demand for these clutches, we are advised, is so great that the present building of this firm is entirely too small. This concern are also placing the machinery in the addition just completed which they made to their gas engine works last June. They now have two floors, each 200 x 36 feet, equipped with modern machinery throughout. The firm find that to meet the demand for their complete gas engines and gas cylinders for use on steam engine beds it is necessary to be in shape to turn out one complete engine per day and six of the cylinders. They are also preparing to make the larger sized engines up to 100 horse-power.

The Wilson, Snyder Mfg. Company of Pittsburgh, builders of pumping machinery, will erect a large addition to their plant.

The Schultz Bridge & Iron Company, McKee's Rocks, Pittsburgh, have closed a contract to erect a steel frame building, 115 x 40 feet, for the Pusey & Jones Company, Wilmington, Del.

The Chicago Pneumatic Tool Company, Chicago, report a further increase in their sales for the opening of the year 1900. The sales for January show over 100 tools more than in December, 1900. Among other orders recently received they report a cable order from Japan for an air compressor and a number of tools for ship building, including riveters, hammers and drills. Their business for 1899 was about quadruple that for 1898, and it is very gratifying to be able to report the considerable increase for the opening of the year 1900.

### Hardware.

The International Steel Post Company of St. Louis, Mo., who make posts of sheet steel cold rolled in a taper cylinder and erect fencing complete, report an excellent run of business in which some desirable local contracts have figured. For the city of St. Louis they manufactured and erected a steel inclosed bear pit for the zoological department of Forest Park and 728 lineal feet of all steel picket fence for St. Louis Park; 1400 feet of park fence, composed of 18 strands of galvanized barb, with three additional strands on overhanging malleable T heads, mounted on sheet steel posts, has been made and erected for the new Monarch Rubber Company's plant, St. Louis, and nearly 5000 feet of the same style fence was placed for the St. Louis Car Company.

The Lynchburg Hardware Mfg. Company, Lynchburg, Va., report that their whole plant is now completed and a large part of the machinery installed and in use. A short time since they were behind orders, but are rapidly catching up and are hopeful that their present large facilities will enable them to take care of all business that can be secured. In addition to manufacturing a full line of builders' hardware a specialty is made of making sheet and railroad car trimmings, and all fine bronze and brass castings. The annual stockholders' meeting of this company was held on the 22d ult. and the following persons were elected directors: E. L. Bell, Geo. P. Watkins, J. G. Payne, Wm. Hurt, J. D. Horsley, Jno. F. Slaughter, Jr., H. E. McWane and C. M. Burgess. At a directors' meeting held upon the adjournment of the stockholders' meeting the following officers were elected for the ensuing year: Wm. Hurt, president; C. M. Burgess, vice-president and general manager, and H. L. Campbell, secretary and treasurer. They refer to the outlook for business during the present year as very encouraging.

The Haydenville Company, Haydenville, Mass., and 150 Nassau street, New York, on the 3d inst. bought from the assignees the entire stock of merchandise and office fixtures of the old Haydenville Mfg. Company which have been in the building at 51 Cliff street, New York, and have shipped them to the factory.

The American Steel & Wire Company bought the Continental Wire Company's plant, at Granite City, Ill., February 5, under mortgage sale.

The binding factory of F. C. Finneran & Co., Painesville, Ohio, has been purchased by a new concern to be known as the Painesville Metallic Binding Company. J. L. Rosenberg of Cleveland, formerly with the George Worthington Company, will be manager of the enterprise. The company will continue the manufacture of oilcloth binding, brass and zinc star nosings and zinc matting ends.

## The Iron and Metal Trades.

Our monthly blast furnace statistics, which we publish elsewhere, show an increase in the capacity working on February 1 over January 1 of 3281 tons per week, the weekly product having reached 290,000 tons per week, exclusive of Charcoal Iron. It should be noted, however, that a good many stocks did not reach their best work in January owing to frequent stoppages. Stocks of Coke and Anthracite Pig increased 19,000 tons during the month, which is surprisingly small considering the fact that melters of Iron were closed down part of the time.

The market on Pig Iron for foundry purposes is still halting somewhat. It must be understood, however, that this refers to the second half of the year, on which alone large consumers are figuring, being fairly well covered for the first half. When a deadlock is spoken of it refers to this business for future delivery.

In the Central West there has been some buying of Bessemer Pig by large Steel makers, the purchases being forced by the fact that some of the furnaces controlled by them have not been working smoothly. This is a good illustration of how closely the majority are working.

There has been a good demand lately for Basic Pig, and there has been a very significant transaction, a lot of 5000 tons having been sold for export by an Eastern furnace. Advices from Europe indicate that the scarcity of raw material continues in an aggravated form, so that relief will be sought on this side whenever any favorable opportunity presents itself.

In Steel Billets there have been no recent transactions of importance, although it is intimated that some large purchases have been made during the past two months for Pipe purposes, an important sale having been made this week.

The Steel Rail manufacturers are in conference with reference to the situation created by the appearance in the field of a new contributor to the market.

In the Eastern markets several lots of Steel Rails have appeared from second hands. They aggregate a little more than 30,000 tons, and are offered under the market. They are Rails contracted for last year for new enterprises which have not been carried through. In one case they were purchased at \$18, so that there is very handsome profit in them, even taking into account the concession which must be made because they are of a certain weight and section.

In Finished Iron and Steel the movement is good but not heavy. Chicago reports that the deadlock in Steel Bars has been broken there and that some large lots have been placed.

The campaign between the consolidation and the outside makers of Cast Iron Pipe continues. Lately an Eastern shop has taken work in Ohio.

Tin has scored a further heavy advance in London. In Copper the reports that a consumers' pool had taken a large block of Calumet & Hecla Copper is denied. The export sales are reported heavy. Spelter is firmer, and the Tin Plate trade is quite active.

## A Comparison of Prices

At date, one week, one month and one year previous.

### Advances Over the Previous Month in Heavy Type. Declines in Italics.

	Feb. 8, 1900.	Feb. 1, 1900.	Jan. 10, 1900.	Feb. 8, 1899.
<b>PIG IRON:</b>				
Foundry Pig, No. 2, Standard, Philadelphia.....	\$22.75	\$22.75	\$23.00	\$12.00
Foundry Pig, No. 2, Southern, Cincinnati.....	20.25	20.25	20.25	11.75
Foundry Pig, No. 2, Local, Chicago.....	23.50	23.50	23.50	12.00
Bessemer Pig, Pittsburgh.....	24.90	24.90	24.90	11.40
Gray Forge, Pittsburgh.....	21.00	21.25	21.25	10.75
Lake Superior Charcoal, Chicago.....	25.50	25.50	25.50	12.50
<b>BILLETS, RAILS, ETC.:</b>				
Steel Billets, Pittsburgh.....	33.00	33.00	35.00	17.25
Steel Billets, Philadelphia.....	36.50	36.50	37.50	19.50
Steel Billets, Chicago.....	nom	nom	38.00	18.50
Wire Rods, Pittsburgh.....	nom	nom	nom	25.00
Steel Rails, Heavy, Eastern Mill.....	33.00	35.00	35.00	20.00
Spikes, Tidewater.....	2.65	2.65	2.65	1.60
Splice Bars, Tidewater.....	2.30	2.30	2.30	1.15
<b>OLD MATERIAL:</b>				
O. Steel Rails, Chicago.....	19.00	19.00	18.00	8.00
O. Steel Rails, Philadelphia.....	23.00	22.50	20.00	...
O. Iron Rails, Chicago.....	23.50	24.00	25.00	14.00
O. Iron Rails, Philadelphia.....	26.00	26.00	26.00	...
O. Car Wheels, Chicago.....	24.00	24.00	21.00	13.00
O. Car Wheels, Philadelphia.....	22.00	22.00	20.50	...
Heavy Steel Scrap, Chicago.....	17.50	17.50	18.00	8.00
<b>FINISHED IRON AND STEEL:</b>				
Refined Iron Bars, Philadelphia.....	2.20	2.20	2.20	1.20
Common Iron Bars, Youngstown.....	2.15	2.15	2.15	1.05
Steel Bars, Tidewater.....	2.40	2.40	2.40	1.17½
Steel Bars, Pittsburgh.....	2.20	2.20	2.25	1.10
Tank Plates, Tidewater.....	2.35	2.35	2.40	1.50
Tank Plates, Pittsburgh.....	2.20	2.20	2.25	1.40
Beams, Tidewater.....	2.40	2.40	2.40	1.40
Beams, Pittsburgh.....	2.25	2.25	2.25	1.30
Angles, Tidewater.....	2.40	2.40	2.40	1.30
Angles, Pittsburgh.....	2.25	2.25	2.25	1.20
Skelp, Grooved Iron, Pittsburgh.....	1.90	1.90	2.10	1.20
Skelp, Sheared Iron, Pittsburgh.....	2.25	2.25	2.35	1.30
Sheets, No. 27, Chicago.....	3.00	3.00	3.00	2.20
Sheets, No. 27, Pittsburgh.....	2.90	2.90	2.80	1.90
Barb Wire, f.o.b. Pittsburgh.....	3.80	3.80	3.80	2.10
Wire Nails, f.o.b. Pittsburgh.....	3.20	3.20	3.20	1.60
Cut Nails, Mill.....	2.50	2.50	2.50	1.30
<b>METALS:</b>				
Copper, New York.....	16.25	16.25	16.12½	17.75
Spelter, St. Louis.....	4.65	4.62½	4.30	5.65
Lead, New York.....	4.70	4.70	4.70	4.67½
Lead, St. Louis.....	4.60	4.65	4.65	4.40
Tin, New York.....	29.25	27.75	25.50	24.40
Antimony, Hallett, New York.....	9.75	9.75	9.75	9.75
Nickel, New York.....	38.00	38.00	38.00	38.00
Tin Plate, Domestic, Bessemer, 100 lbs., New York.....	4.84	4.84	4.84	3.44

### Chicago. (By Telegraph.)

Office of The Iron Age, 805 Fisher Building, CHICAGO, February 7, 1900.

A few lines are fairly alive, but the general buying movement so long expected has not yet set in. It seems as if it could not be delayed much longer, as consumers are now frequently being driven to the market by their necessities. This is shown by the requests for quick delivery which accompany most orders. It is probable that renewed activity would have been seen earlier if buyers had not generally been induced to defer purchases in the hope that prices would by this time be considerably lower. The firmness of values is evidently a condition not anticipated. The Iron trade is certainly going through the usual midwinter dull period in excellent shape.

**Pig Iron.**—The largest buyers of the past week have again been the Cast Iron Pipe manufacturers. Round lots have been sold for this purpose, one of these calling for 6000 tons. Quite a number of fair sized contracts were also closed with other interests and some heavy business is still pending. The Southern furnace companies are securing by far the greater part of the trade at present. Local furnace companies are unable to make any considerable deliveries for the first half of the year, which is the period covered by contracts now being placed. Prices are, on the whole, well maintained at quotations, but Ohio Strong Softeners have been reduced and here and there a soft spot is found among the smaller Southern companies. It is alleged that the starting of long idle furnaces is mainly responsible for concessions, as operators are, of course, anxious to secure some business in starting up. The supply of Iron is barely equal to the immediate demand, as quite a number of furnaces are short of Coke and unable to turn out a sufficient product to fill their current contracts. This keeps up a good demand for small lots for immediate delivery. We quote for cash as follows:

Lake Superior Charcoal.....	\$25.50 to \$26.00
Local Coke Foundry, No. 1.....	24.50 to 25.00
Local Coke Foundry, No. 2.....	23.50 to 24.00
Local Coke Foundry, No. 3.....	22.50 to 23.00
Local Scotch, No. 1.....	25.00 to 25.50



Ohio Strong Softeners, No. 1.....	24.50 to	25.50
Southern Silvery, according to Silicoon..	25.50 to	27.00
Southern Coke, No. 1.....	22.85 to	23.35
Southern Coke, No. 2.....	21.85 to	22.35
Southern Coke, No. 3.....	20.85 to	21.30
Southern Coke, No. 1 Soft.....	22.85 to	23.35
Southern Coke, No. 2 Soft.....	21.85 to	22.85
Poundry Forge.....	20.85 to	.....
Gray Forge and Mottled.....	20.85 to	.....
Southern Charcoal Softeners, according to Silicoon.....	21.85 to	25.85
Alabama and Georgia Car Wheel.....	24.85 to	25.85
Malleable Bessemer.....	25.00 to	26.00
Standard Bessemer.....	..... to	.....
Jackson County and Kentucky Silvery, 8 per cent. Silicoon.....	32.30 to	32.80

**Bars.**—Although no general buying movement can be reported in Bar Iron, the conditions are steadily growing more favorable for manufacturers. Here and there large consumers, who have been holding off to wait for a decline, find themselves compelled to come into the market. The demand for small lots is excellent, and in almost every case they are accompanied with urgent requests for prompt shipments. Inquiries are increasing. The deadlock between Steel manufacturers and their trade has been broken by the placing of contracts for several thousand tons of Soft Steel Bars within the week at full prices. Mill shipments are quoted at 2.30c. to 2.40c., Chicago, for Common Iron; 2.35c. to 2.45c. for Soft Steel Bars, and 2.65c. for Bands. Jobbers are enjoying a continued good trade, although ordinarily at this time they find a slackened demand. Small lots from stock are quoted at 2.90c. for Bar Iron, 2.60c. to 2.65c. for Soft Steel Bars, and 4c. for Norway and Swedish Iron.

**Structural Material.**—Seldom have more building prospects been in sight in this vicinity than at present. Every week brings forward some new building schemes. Unfortunately the disagreement between contractors and the local unions has not been settled and this week the workmen have been locked out in several trades, which checks building operations. It is hoped the matter will be settled quickly, so that normal conditions will prevail in this line, with good effect on business. The demand for Shapes for Bridges, as well as from a large line of manufacturing consumers, is good, the aggregate business coming from the small lot trade being quite large. Mill shipments are quoted as follows, Chicago delivery: Beams, Channels and Zees, 15-inch and under, and Angles, 3 to 6 inches, 2.40c.; Beams, &c., 18 inches and over, and Angles over 6 inches and under 3 inches, 2.50c.; Tees, 2.45c.; Universal Plates, 2.45c. to 2.60c. Local yards are quoting small lots of Beams and Channels at 2.90c. to 3c.; Angles, 2.70c. rates, and Tees, 2.85c.

**Plates.**—The market is still irregular. Rumors of very low prices are in circulation, but some of these are asserted to have been put out in the hope of still further breaking prices. A fair demand is observed for mill shipment, but seldom for lots running over 100 tons. The demand from store is light. Quotations on ordinary mill shipments, Chicago delivery, are as follows: Tank, 2.45c. to 2.50c.; Flange, 2.65c. to 2.85c.; Marine, 3c. to 3.25c.; Fire Box, 3.30c. to 5½c. Jobbers quote Tank from store at 2.80c. to 3c., and Flange, 3c. to 3.25c.

**Merchant Pipe.**—A better demand is giving some life to business and prices are firm but unchanged. Carload lots of Black Merchant Pipe are quoted at 50, 10 and 5 to 50 and two 10's, and Galvanized Pipe at 57 and two 10's.

**Sheets.**—More interest is being taken by large buyers, many of whom are, however, deferring their purchases until they have some assurance that the proposed consolidation of Sheet mills will either succeed or be abandoned. The best information on this point is to the effect that the arrangements for consolidation are progressing satisfactorily, with nearly every mill under option that had been expected to join the movement. Abstracts of title are now being collected for the different properties. Some of the mills have advanced their prices materially since last report, but the market can still be quoted at 3c. to 3.15c., Chicago, for mill shipments of No. 27 Black, and 75 to 75 and 5 per cent. for Galvanized Sheets. Jobbers report that they have seldom had as strong a demand from stock as at present. They quote small lots at 3.30c. to 3.45c. for No. 27 Black, and 70 and 10 per cent. off on Galvanized.

**Merchant Steel.**—The sprinkling of orders for 100 to 200 tons is a little larger; the aggregate of business is therefore steadily increasing. Prices show no quotable change. Mill shipments, Chicago delivery, are quoted as follows: Smooth Finished Machinery Steel, 2.95c. to 3.05c.; Smooth Finished Tire, 2.80c. to 3c.; Open Hearth Spring Steel, 3.60c. to 3.75c., base; Toe Calk, 3.20c. to 3.50c., base; Sleigh Shoe, 2.75c. to 3c.; Cutter Shoes, 3.45c. to 3.65c.; Ordinary Tool Steel, 7c. to 7½c.; Special, 13c. and upward.

**Rails and Track Supplies.**—Inquiries are being received for round lots of Standard Section Rails, but no

transactions have recently been closed. The manufacturers are well supplied with business for almost this entire year and are holding prices firmly at \$35 to \$40, according to quantities. The demand for Light Rails continues good, but no large sales are reported. They are quoted at \$35 to \$40, according to section. Prices of Track Fastenings are as follows: Steel Fish Plates, 2.25c. to 2.50c.; Iron Fish Plates, 2.30c. to 2.50c.; Spikes, 2.65c. to 2.75c.; Track Bolts, with Hexagon Nuts, 3.95c. to 4c.; Square Nuts, 3.80c. to 3.85c.; Steel Links and Pins, 3.20c.; Iron Links and Pins, 3.15c.

**Old Material.**—Old Iron Rails are weak and lower, holders offering them in quantities of 500 to 1500 tons without securing satisfactory bids. Other classes of Scrap material are not in strong demand, but, on the contrary, consumers say that their bids at declining prices are more frequently accepted than refused. Old Car Wheels continue to form a notable exception to the general list, being firmly held. Approximate market prices are as follows, per gross ton:

Old Iron Rails.....	\$23.50 to \$24.50
Old Steel Rails, mixed lengths.....	19.00 to 20.00
Old Steel Rails, long lengths.....	21.50 to 22.50
Relaying Rails.....	28.00 to 30.00
Old Car Wheels.....	24.00 to 24.50
Heavy Melting Steel Scrap.....	17.50 to 18.50
Mixed Steel.....	12.50 to 13.00
Iron Fish Plates and Angle Bars.....	24.00 to 25.00
Steel or Mixed Iron and Steel ditto.....	20.00 to 21.00
Iron Car Axles.....	27.00 to 28.00
Steel Car Axles.....	24.00 to 25.00
No. 1 Railroad Wrought.....	22.50 to 23.00
No. 2 Railroad Wrought.....	19.00 to 19.50
Shafting, Iron and Soft Steel.....	20.00 to 21.00
No. 1 Wrought.....	16.00 to 17.00
No. 1 Country Wrought.....	15.00 to 15.50
No. 1 Mill.....	11.50 to 12.00
No. 2 Mill.....	7.50 to 8.00
No. 1 Busheling.....	14.00 to 14.50
No. 2 Busheling.....	9.50 to 10.00
Iron Car Axle Turnings.....	14.50 to 15.00
Soft Steel Car Axle Turnings.....	13.50 to 14.00
Machine Shop Turnings.....	12.00 to 13.00
Wrought Drillings.....	11.50 to 12.00
Cast Borings and Drillings.....	9.00 to 9.50
Mixed Borings and Turnings.....	9.00 to 9.50
No. 1 Boilers, cut.....	13.50 to 14.00
No. 2 Boilers, cut.....	6.00 to 7.00
Boiler and Ship Scrap.....	15.00 to 16.00
No. 1 Cast.....	14.00 to 15.00
No. 2 Cast.....	9.50 to 10.00
Railroad Malleable Cast.....	15.00 to 15.50
Agricultural Malleable Cast.....	14.00 to 14.50

**Metals.**—Carloads of Lake Superior Copper have weakened to 16½c., and Casting brands have also slightly declined to 16¼c. Spelter is higher, being now quoted at 5c. Pig Lead is quoted at 4.65c. for Desilverized and 4.75c. for Corroding, for February and March. The Lead market is strong but quiet.

**Tin Plates.**—Manufacturing consumers are placing large orders for future delivery. Trade is therefore considerably more active. Jobbers are having a moderate demand from their customers and report prices firm, but unchanged.

## Cleveland.

CLEVELAND, February 6, 1900.

**Iron Ore.**—What will be the output of the Lake Superior district during the season of 1900? This is at present the most absorbing question with operating, shipping and dock interests alike, and there is far more uncertainty and, consequently, far more ground for speculation in the matter than many persons imagine. Preparations continue to go forward for the reopening of some of the abandoned mines which have not been worked for years and the reports received at the Cleveland offices of the operating companies indicate that the work of exploration, which has been carried on unremittingly since last autumn, is likely to show results fully as encouraging as could have been expected. There were in operation last year a total of 95 mines, and as this figure lacks but one of being the maximum number which have been worked in any one year since the opening of the region, there can be no question but that this year's total will be far in excess of all previous records. The preparations for handling the Ore at all stages of its transportation from mine to furnace are constantly assuming greater scope. Several of the dock interests at Lake Erie ports have asked the manufacturers of Ore unloading machinery for estimates on additional equipment, while there is now a practical certainty of the completion by the opening of the season of the two new loading docks on Lake Superior, which will increase the storage capacity by almost 100,000 tons. Finally there is talk of the establishment of a new shipping port at Wells, which has as fine a harbor as Escanaba, and would provide an additional outlet for Menominee range Ore. Meanwhile the vessel situation is gradually developing along rather unlooked for lines. When the scramble for tonnage occurred some weeks ago vessels with an aggregate capacity of about

17,500,000 tons were tied up under season contracts. Since that time there have been scattered charters at intervals, so that it is now certain that there is in the hands of the Ore shippers sufficient tonnage to move between 18,500,000 and 19,000,000 tons of Ore. The vesselmen, who are holding off for the "wild" rate, have not been shaken in their determination in the least and still express confidence that the early autumn will see a rate of \$2 from the head of the lakes. Recent developments seem to indicate that the individual vessel owner is likely to be a factor in the Ore situation for a while longer. When the heavy purchases of vessels and contracts for new tonnage were made last autumn by the large producing interests it looked as if the entire Ore carrying tonnage was to speedily pass into the hands of these combinations, but of late there has been a revision of this opinion, induced in a great measure by recent purchases of vessels by independent owners. J. C. Gilchrist and other independent owners have purchased no less than eight Ore carrying steamers during the past week. They say that they have no especial object in view, but it becomes apparent, nevertheless, that the unaffiliated fleets are yet to be reckoned with. Another development of the week is the announcement that the Lackawanna Railroad Company will have constructed at once 15 steel barges—probably at Atlantic coast yards, as all the lake yards are filled with work. These vessels will be of a size which will permit of their passage through the St. Lawrence canals, and while designed primarily for the coal trade, will be available for Ore carrying trade, if desired. As for present market conditions, it may be noted that the Carnegie Steel Company are in the market for more tonnage to carry Ore from Marquette, and there is also some more Ore to be had from the ports at the head of Lake Superior. Escanaba shippers, however, are pretty well covered up and there is tonnage on the market at the old rate. Sales of Ore have been in small lots and of about the same volume as for several weeks past.

**Pig Iron.**—The market still remains inactive, despite the movement reported from some other points. The sales of Bessemer Iron reported are, without exception, non-association product. The association has received no inquiries and there is no prospect of a meeting in the immediate future. In Foundry Iron the market shows absolutely no change from a week ago. Foundrymen are, as a rule, pretty well supplied, and there seems manifest a disposition to hold off in order to allow things to shape themselves somewhat. A percentage of the foundrymen have, however, a supply covered only for the first quarter, and it is certain that their demands will force a revival of activity within a short time or by March 1 at the latest. Quotations may be given as \$23 for No. 1 and \$22.50 for No. 2 at the furnace. The supply of Coke continues more or less of a problem at certain furnaces, while others are fairly well supplied. Some Southern Gray Forge appears to be moving, but there is practically nothing doing in this grade in this district.

**Finished Material.**—The week, although not characterized by any strengthening influences, cannot be said to be void of development. The market presents a contrast. In many lines inquiry has been exceptionally light, while in others it has been quite satisfactory. Local architects have come up with a nice line of work and the prospects are for a good movement in Structural Material a little later. The possibility of a consolidation of some of the Sheet mills, which has within the past week become a probability, has stiffened the market, and this has been followed in some cases by a slight advance in prices. In some instances slight advances have also been made in Pipe prices in anticipation of action along this line, which, it is expected, will be taken at the meeting this week. The Plate market is, if anything, in rather worse shape than last week, as a result of the scramble for business by some of the large concerns. On some large orders local sales agents have made an even better price than the 2.25c., Pittsburgh, quoted last week. Contracts will be let within a few days for Plates for three vessels for service on the Great Lakes, amounting in the aggregate to about 5000 tons. Bar mills are in many instances running rather slow, in the hope of keeping down production. The manufacturers believe that if they can hold up prices to the present standard for 30 days longer there will be a revival of activity that will strengthen the market and possibly enable a slight advance in prices. None of the Finished Material men look for any sharp advance in prices during the early spring.

**Old Material.**—The market has shown little or no change, either in the movement or quotations. The activity is as great as could be expected at this season of the year and with the slight let up in influencing lines.

## St. Louis. (By Telegraph.)

Office of The Iron Age, 1205 Chemical Building, {  
St. Louis, February 7, 1900. }

**Pig Iron.**—The market shows quiet surface. Moderate buying continues, but orders are of small size, not differing from transactions such as have ruled for the past few months. Some goods for which demand is not heavy are offered for nearby shipments, but Standard Irons, Nos. 1 and 2 Foundry and Soft, are scarce. No tendency shown toward shading prices; in fact, most furnaces say impossible to quote. It is understood that some Nos. 3 and 4 Foundry has been offered below \$16.50, Birmingham, for No. 3, but whether it is furnace stock or odd car offerings of private holders cannot be ascertained. Chilling, Low Silicon and Car Wheel Irons are in demand and hard to get. This applies also to Basic Open Hearth. Foundrymen are entering up more business this month, but it is true that purchases are still being deferred, although inquiries are more freely presented. Advanced prices rule on Coke, Connellsville being quoted to-day \$7.10, and Virginia at \$6.85, St. Louis. It is still claimed that railroads cannot supply cars for prompt shipments of Coke. We quote on cars St. Louis:

Southern, No. 1 Foundry.....	\$22.25 to \$22.50
Southern, No. 2 Foundry.....	21.25 to 21.50
Southern, No. 3 Foundry.....	20.25 to 20.50
No. 1 Soft.....	22.25 to 22.50
No. 2 Soft.....	21.25 to 21.50
Gray Forge.....	20.00 to 20.25

**Bars.**—Conditions are same as last noted. A better volume of business is in action, and jobbing houses say February opens up in good shape. This January was the best many have had. Purchases are almost wholly for immediate use, and therefore indicative of activity right down the line. Prices are firmly held. Mill quotations on Iron remain at 2.35c., base, half extras, East St. Louis, in carload lots. No change has taken place in jobbers' prices, which are 2.75c. to 2.90c., base, full extras, as to quantities and assortment. Steel Bars are now definitely quoted by mills at 2.40c., base, half extras, in carload lots, East St. Louis. Jobbers' price is 3c., full extras.

**Rails and Track Supplies.**—The usual trade had between quarterly purchases is coming forward. We quote: Splice Bars, Steel, 2.55c.; Iron, 2.55c.; Track Bolts, with Square Nuts, are now 3.65c.; with Hexagon Nuts, 3.85c.; Spikes, 2.75c.; Steel Links and Pins, 3.20c.

**Pig Lead.**—The demand is good, and last week's prices firmly held are quoted to-day. An occasional car of Soft Missouri is sold at 4.60c. Desilverized and Chemical stiff at 4.65c. Ore lost another 25c., sales taking place at \$27.75 per 1000 lbs.

**Spelter.**—Prices show steady increase. Exchange quotations to-day were 4.75c., which is considered too high by smelters themselves. Eastern bids to-day were 4.60c., St. Louis, but were refused. In absence of transactions 4.65c. to 4.70c. is held to be true value. Some 300 tons have been engaged for freight shipment during February. Top grades Zinc Ore regained part of last week's loss and brought \$34.50 per ton.

Donk Bros. Coal & Coke Company, Chamber of Commerce Building, St. Louis, have recently been appointed sales agents for Red River brand of Pig Iron, made at Clarksville, Tenn. Their territory comprises the States of Iowa, Nebraska, Colorado, Texas, Kansas, Arkansas, all of Missouri except St. Louis, and a portion of Central and Southern Illinois, Western Kentucky, Western Tennessee.

## Cincinnati. (By Telegraph.)

Office of The Iron Age, Fifth and Main streets, {  
CINCINNATI, February 7, 1900. }

New business in Pig Iron circles was a little slower last week and the feeling is that this indicates a firmer condition in the market. It is pretty certain that Iron was sold ten days or so ago at 25c. under the minimum quotations given to-day, but it is a rather doubtful matter as to the quantity and conditions. The largely preponderating selling interest is strong at the maximum and it is not believed here that there is enough cut price stock offering to seriously break the market. The fact that buyers are again holding off seems to indicate a lack of Iron to be had at their ideas of value. Consumption is increasing rather than diminishing and buyers are more urgent than ever for Iron to be forwarded. The outlook for the next week is very uncertain. It may prove a dull seven days or it may be a season of activity. Buyers are needing Iron and many will have to act very soon. In the absence of trading the quotations are unchanged. We quote, f.o.b. Cincinnati:



Southern Coke, No. 1.....	\$21.50 to \$21.75
Southern Coke, No. 2.....	20.50 to 20.75
Southern Coke, No. 3.....	19.50 to 19.75
Southern Coke, No. 4.....	18.75 to 19.25
Southern Coke, No. 1 Soft.....	21.50 to 21.75
Southern Coke, No. 2 Soft.....	20.50 to 20.75
Southern Coke, Gray Forge.....	18.75 to 19.25
Southern Coke, Mottled.....	18.75 to 19.25
Ohio Silvery, No. 1.....	.... to 30.00
Ohio Silvery, No. 2.....	.... to 29.00
Lake Superior Coke, No. 1.....	23.00 to 24.00
Lake Superior Coke, No. 2.....	22.00 to 23.00

#### Car Wheel and Malleable Irons.

Standard Southern Car Wheel, Chilling Grades .....	\$25.75 to \$26.25
Standard Southern Car Wheel, No. 2.....	24.75 to 25.25
Lake Superior Car Wheel and Malleable .....	25.50 to 26.50

**Plates and Bars.**—Business has been nominally active and the prices are unchanged and firm. We quote, f.o.b. Cincinnati: Iron Bars, carload lots, 2.25c., with half extras; small lots, 2.60c., with full extras; Bar Steel, in car lots, 2.50c., with half extras; small lots, 2.95c., with full extras; Iron Bar Angles, 1½ x 3-16 inch and larger, in car lots, 2.55c.; small lots, 2.80c.; Sheets, No. 10, 3c. to 3.15c.; No. 27, Stove Pipe, 3.25c.; No. 27, Steel, 3.35c.; Plates, 2.75c. to 3c.

**Old Material.**—New business has been quiet and prices unchanged. We quote, f.o.b. Cincinnati: No. 1 Wrought Railroad Scrap, \$20 to \$21 per net ton; Cast Scrap, \$12 to \$13 per gross ton; Axles, \$25 per net ton; Iron Rails, \$24 per gross ton; Car Wheel, \$22 to \$22.50 per gross ton.

## Pittsburgh.

Office of The Iron Age, Hamilton Building, Pittsburgh, February 7, 1900.

(By Telegraph.)

**Pig Iron.**—The Bessemer furnaces still continue to quote \$24 at furnace for Bessemer Iron, equal to \$24.90, Pittsburgh. As noted last week, some small stray lots are being offered at lower prices. Two leading steel interests are credited with having bought about 20,000 tons of Bessemer for February delivery within the last few days at the Association price. There have been further sales of Forge at \$21, Pittsburgh, for local iron. Virginia Iron is being offered at \$20.65, Pittsburgh. Foundry Iron is quoted at \$23, Pittsburgh, for No. 2. We quote Gray Forge, \$21.50; Bessemer, \$24, both Association prices, at Valley furnace; No. 2 Foundry, \$23; Virginia and Southern Forge, \$20.65; local Forge, \$21 to \$21.25; Bessemer, \$24.90, all f.o.b. Pittsburgh. We note sales of 15,000 tons of Standard Bessemer for prompt delivery at \$24, Valley, also 2000 tons of local Forge Iron at \$21, Pittsburgh.

**Steel.**—The market continues very dull and hardly enough Steel is being sold to establish a price. The mills continue to quote \$35, but on a firm offer this price would be shaded.

**Sheet Bars.**—The market is very dull, and it is not likely there will be any business done of any consequence while the deal for the consolidation of the Sheet mills is pending. Some Sheet Bars are being offered for resale by Sheet mills. We quote nominally at \$36 at mill.

**Muck Bar.**—The market is very dull. We quote standard grades at \$33 to \$33.25, Pittsburgh. Some grades, we are advised, are being offered as low as \$32.50.

**Spelter.**—The market is higher. We quote prime Western grades of Spelter for future delivery at 4.80c., while for spot delivery 4.85c., Pittsburgh, is quoted.

(By Mail.)

The Iron trade continues quiet, but prices are surprisingly strong. It is evident that buyers are placing orders only for immediate requirements, which will account for the light tonnage the mills are entering. However, orders so far in February have been fair, but for small lots. Bessemer Pig Iron continues to be quoted at \$24 at furnace, but there are reports of stray lots being offered at lower prices. Steel is quoted at \$34 to \$35. In Finished Material there is nothing of interest to note. Prices are about the same as a week ago, the tone of the market being strong. There is a good deal of difference of opinion as to whether present values can be held. It is believed, however, that demand will soon have to show considerable improvement, or else prices on several lines will be lower.

**Sheets.**—There is nothing new to report in the Sheet trade. Compared with very low prices of a couple of months ago, there has been considerable improvement, but at the same time, prices on Sheets, based on \$36 Bars, would not allow much profit, if any, to the mills. We continue to quote No. 27 Black Sheets at 2.90c. to 3c.; No. 28, 3c. to 3.10c. We quote Galvanized Sheets at 75 and 5 per cent., with 15c. freight.

**Steel Rails.**—The domestic market on Steel Rails is very quiet, and we quote at \$35 to \$36 at mill for Standard Sections.

**Structural Material.**—A good deal of bridge work is pending, and several large buildings are being figured on, and which are likely to be placed in a short time. It is claimed that if only a part of the tonnage in sight is placed it will serve to keep the mills busy for some time. Both local mills are filled up for the next two or three months. We quote Beams and Channels, 15-inch and under, 2.25c.; over 15-inch, 2.35c.; Angles, 3 to 6 inch, 2.25c.; Angles, smaller than 3-inch and larger than 6-inch, 2.35c.; Flat Bars, 2.25c.; Pins, 2.25c.; Grooved Rolled Plates, 2.30c. to 2.35c.; Universal Mill Plates, 2.35c.; Tees, 3-inch and larger, 2.30c.; Zees, 3-inch and larger, 2.25c., all f.o.b. Pittsburgh.

**Plates.**—The Plate trade remains in the same condition as noted in this report for some weeks past. Demand is light and is mostly for small lots. Reports of demoralization in prices of Plates continue to be circulated, but in the main are without foundation. Comparatively low prices are being made on any desirable tonnage coming up. The general market on Tank, ¼-inch and heavier, is 2.25c. to 2.35c. at mill. For a very nice order the lower price might be slightly shaded. We quote Shell at 2.40c. to 2.50c.; Flange, 2.50c. to 2.60c.; Marine, 2.60c. to 2.70c.; Fire Box, 3c. to 3.50c., depending on quality.

**Bars.**—Tonnage in both Iron and Steel Bars is reported to be slightly better, but buyers continue to purchase in small lots for immediate wants. On the other hand, as noted last week, it is the policy of the larger Bar mills to restrict output, if necessary, rather than make any concessions in prices. Both Iron and Steel Bars are firm, and we quote Iron Bars, Valley mill, at 2.15c., and Steel Bars at 2.20c., half extras. Local mills continue to quote 2.25c. for Steel Bars and the same price for Refined Iron Bars, both carrying half extras. These prices, we are advised, are the minimum of the market, and for carload lots. For small orders some mills are quoting higher prices.

**Merchant Steel.**—Trade is somewhat quiet and prices on certain lines seem to be weaker. Specifications on old contracts are keeping the mills pretty well filled up. We quote: Toe Calk, 2.75c., base; Tire, 2.50c. to 2.60c.; Open Hearth Spring, 3.25c.; Plow Slabs, 2.75c. to 3c.; Machinery Steel, 2.50c.; Sleigh Shoe, 2.75c. to 3c.; Cutter Shoes, tapered and bent, 3.75c. to 4c.; Rolled Lay Steel, 3.75c.; Hammered Lay Steel, 4.50c.; Tool Steel, 7c. and upward, freight allowance not to exceed 25c.; terms, except Tool Steel, 30 days, net cash.

**Skelp.**—The market is quiet and there is a good deal of range in prices being quoted by the different mills. For ordinary widths some mills are quoting at 1.90c. to 2c. for Grooved Iron and Steel, and 2.25c. to 2.35c. for Sheared sizes. Some of the larger mills, we are advised, are quoting from \$2 to \$3 a ton higher than these prices.

**Pipes and Tubes.**—A new price-list on Black and Galvanized Merchant Pipe is being prepared, and will be ready for the trade about February 15. We are advised that the demand for Pipe is good, the mills entering considerable tonnage. We quote: Black Pipe in carload lots 50 and 10 and 10 per cent., and Galvanized Pipe at 57, 10 and 10 per cent., delivered. Small lots of Black are quoted at about 50 and 10 per cent. at mill, and Galvanized 57 and 10 per cent. at mill. We quote Screw and Socket Joint Casing at 37½ per cent.; Inserted Joint, 32½ per cent., with an optional 5 per cent. to dealers. We quote Boiler Tubes as follows: 1¼-inch and 1½-inch Iron, 40 per cent.; Steel, 40 per cent.; 1¾ to 2½ inch Iron, 50 per cent.; Steel, 55 per cent.; 2¾-inch and larger Iron, 52½ per cent.; Steel, 55 per cent., with an extra 5 per cent. in carloads; less than carloads, f.o.b. maker's mill, Pittsburgh, while carloads are delivered.

**Connellsville Coke.**—Last week there were 19,360 ovens in the Connellsville region active and only 632 idle, the output for the week having been 215,539 tons, much the largest production ever turned out in one week in the history of the Connellsville Coke trade. The car supply in the region is reported as being fairly satisfactory, and the movement of Coke East and West is very heavy. Most of the consumers are covered by contracts, but for small lots of Furnace Coke for prompt

shipment, all the way from \$2.75 to \$3.25 is quoted, while for Foundry Coke from \$3 to \$3.50 has been named. No large orders for Coke are being placed.

The American Steel Hoop Company, whose general offices are now located in the First National Bank Building, Fifth avenue and Wood street, Pittsburgh, will be removed about April 1 to the new Empire Building, at Liberty avenue and Fifth street, Pittsburgh. About two and a half floors will be occupied. The rooms in the First National Bank Building to be vacated by the American Steel Hoop Company will be occupied by the Pressed Steel Car Company.

## Philadelphia.

Office of The Iron Age, Forrest Building, {  
PHILADELPHIA, PA., February 6, 1900. }

The Iron and Steel situation remains in the same unsettled condition as noted for a good many weeks past. Conditions are such that a very plausible theory might be built up on either side of the case, and the chances are about evenly balanced as to which one would prove to be correct. There is one feature which appears to be developing, however, which is of very great importance, and is, in fact, the same that gave the market its first start a year ago—viz., the export trade. Prices abroad are advancing so steadily, and the inability to meet the demand is so inadequate, that it is extremely probable that large quantities of material will be taken from this side of the Atlantic. This is precisely what is needed to give our home markets a start. It may be taken for granted that the output of Pig Iron and its allied products in the United States is now fully equal to if not in excess of our own requirements, hence it is of the greatest importance that we should have some outlet other than in our workshops. Several sales of Finished Material for export were made last week, and it is said that 5000 tons of Pig Iron was taken from a local furnace for shipment to Germany, and while there is a great deal of secrecy maintained in regard to details, there is no doubt that business has been done and that more is under negotiation; but the essential feature is that foreigners are again coming here for supplies, and if that develops as it did a year ago the entire complexion of the market is liable to change as it did then. "One swallow does not make a summer," however, although it is usually an indication that we are getting toward it. It may not be advisable to dwell much on the other side of the case, although something might be said in regard to the thinning out of order books, the gradual melting away in prices and the extreme caution which buyers are showing in regard to long contracts. Moreover, there is a feeling that prices are held up by the new combinations and are therefore more or less artificial. They may hold or they may not, but there is an impression that the situation is considerably strained and not likely to be relieved unless there is a considerable amount of outside buying, but whether that will be done at these or a lower range of prices remains to be seen.

**Pig Iron.**—The demand is not large, but so much Iron is being delivered on old contracts that furnace banks are in excellent shape; that is to say, there is not much Iron being piled and most of the companies see their way to comfortable conditions for a considerable time ahead. Buying, however, is of a somewhat hesitating character, and if anything like fair sized orders come on the market pretty close figures have to be named. It cannot be claimed that there is any all round decline from last week's figures, but it is doubtful if the average of prices realized would equal those of the week previous, and at this writing the feeling is a little easy. There is not enough Iron on furnace banks to cause any immediate pressure, but it is obvious that some makers are disposed to encourage business for long deliveries on what appear to be very favorable terms. This indeed has been in evidence for some weeks past, although it has had no great influence as yet, from which it may be inferred that there is a great deal of inherent strength in the situation. Some people reason that in view of the fact that prices have yielded so little during two or three months of intense dullness, it is a fair inference that with the better demand which is sure to come in the near future the process of recovery will be very easy. But, on the other hand again, sentiment is not "bullish," and sometimes sentiment is an important factor in shaping prices. It is a long time since the market was in the peculiar condition that it is in at present, however, and it would not take much to turn it either way. Buyers and sellers understand that perfectly, and that is the reason they are standing aside to see it work out its own salvation. As a rule seaboard prices are about as follows, with relatively lower prices at points within a

radius of 100 miles west or south: No. 1 X Foundry, \$25 to \$25.50; No. 2 X Foundry, \$23 to \$24; No. 2 Plain, \$22.25 to \$22.75; Standard Mill Iron, \$20.25 to \$20.75; Basic, \$22.25 to \$22.50; Bessemer, nominal, \$22.50 to \$23; Low Phosphorus, \$27 to \$28, and Charcoal Iron, \$28 to \$30.

**Billets.**—Nothing doing in Steel; prices nominally \$37 to \$37.50. These figures are higher than consumers think they ought to pay, consequently everything is held back until the latest moment possible.

**Muck Bars.**—Prices are easy and buyers are not willing to pay much over \$30, at seller's mills. One good sized lot was secured at a still lower figure, and at the moment there is not much disposition to buy unless at very close figures.

**Plates.**—There is quite a good demand for small and medium sized lots and some inquiry for 500 and 1000 ton lots, but the amount of new business taken is not as large as might be supposed. Deliveries are heavy, however, as a great deal of material which was held up during the spring and summer months of last year is now going forward, which in a measure obviates the necessity of new purchases. It is said that the material for the ships recently ordered will be supplied from these back contracts, hence while the mills are actively employed they are not adding to the tonnage which has been on their books for some time past. Prices are fairly steady at about the following range for seaboard deliveries: Steel Plates, ¼-inch and thicker, 2.40c. to 2.45c.; Shell, 2.50c. to 2.60c.; Flange, 2.75c. to 2.85c.; Fire Box, 3.10c. to 3.15c.; Charcoal Iron Plates, C. H. No. 1, 3c.; Best Flange, 3.50c.; Fire Box, 4c.

**Structural Material.**—There is plenty of work in this department and order books are easily kept in good condition. In this department the capacity for production is not likely to be any too large, consequently prices are firmly maintained at the rates which have been in force for several months past, which for seaboard and nearby deliveries are quoted as follows: Beams and Channels, 15 inches and under, 2.40c.; Angles, 3 to 6 inches, 2.40c.; Zee Bars, 2.40c., f.o.b. Philadelphia; Angle Bulbs and Deck Beams, 2.63c.; Tees, 2.45c.

**Bars.**—There is a good demand for Bars and mills have no difficulty in keeping full of work. Prices are a little erratic, notwithstanding the reaffirmation recently made, but they average a trifle better than they did two or three weeks ago. There is something doing for export and at the prices now ruling there appears to be a good margin on business of that kind, and it would be no surprise to see a heavy movement in this direction. Prices about as follows for Philadelphia or nearby deliveries: Ordinary Iron, 2.07½c. to 2.10c.; Refined Iron, 2.20c.; Test Iron, 2.30c.; Steel Bars, 2.50c. to 2.60c.

**Sheets.**—The demand is improving and prospects indicate greater activity and, it is hoped, better prices in the near future. Last week's quotations are continued for best Sheets—viz. (Common Sheets two-tenths less): No. 10, 2.70c. to 2.80c.; No. 14, 2.95c.; No. 16, 3c.; Nos. 18-20, 3.05c.; Nos. 21-24, 3.15c.; Nos. 26, 27, 3.25c.; No. 28, 3.35c. to 3.45c.

**Old Material.**—The market has not changed materially from last week. Prices are steady and for good Steel Scrap they are firm, but the demand is uneven and prices depend a good deal upon which side is most anxious to make the deal. Bids and offers are about as follows for deliveries in buyers' yards: Choice Railroad Scrap, \$23 to \$25; No. 1 Yard Scrap, \$19 to \$20; No. 2 Light Scrap, \$13 to \$14; Machinery Cast, \$17.50 to \$18.50; Heavy Steel Scrap, \$22 to \$23; Old Iron Rails, \$26 to \$28; Old Steel Rails, \$23 to \$24; Wrought Turnings, \$15.50 to \$16; Cast Borings, \$13.50 to \$14; Old Car Wheels, \$22 to \$23; Iron Axles, \$26 to \$28; Steel Axles, \$27 to \$29.

Lewis F. Shoemaker & Co. have removed their offices from the Fidelity Building to more commodious quarters, 710, 711 and 712 Harrison Building, and are prepared to take contracts of any size for Structural Iron Work, Building Castings, Rods and Bolts, &c.

P. E. Montanus, president of the Springfield Machine Tool Company of Springfield, Ohio, arranged recently at the works for a display of the exhibit which the company are to make at Paris. The tools shown are a standard engine lathe, 18 inches by 8 feet; a turret on bed, for 18-inch engine lathe, interchangeable with tall stock; a turret on carriage for 18-inch engine lathe, interchangeable with compound rest; a Fox monitor lathe, 18 inches by 6 feet, with friction back gear; a 20-inch crank shaper, and a shafting lathe, 24-inch swing by 32-foot bed, 24 feet between centers.



**Birmingham.**

BIRMINGHAM, ALA., February 5, 1900.

The increased inquiry noted in last week's letter was fully maintained during the week just closed. In fact it was increased and led to increased transactions, making with some interests the largest business for several weeks past. Some round lot orders were accepted, two of them being for 5000 tons each. The small lot orders have increased in size, which indicates that buyers are quitting the "hand to mouth" policy and accepting current values as likely to prevail. There is yet some talk of concessions and there is a belief that on some business for the last half of the year they have been made. But for delivery the first half of the year there is no evidence of any being made. There is no necessity for it, for every mail continues to bring appeals to hasten shipments and in many cases to anticipate delivery. With no stock to draw on the furnaces find it impossible to accommodate the requests of their customers. Besides that the furnaces themselves are short in delivery of certain grades, in some cases, and they are pushed to enforced delay. So it makes the situation as to prompt and nearby delivery exceedingly strong. Add to this the fact that we are on the eve of the spring buying, and the probability of any easement in the situation is not encouraging. Then you must consider that by spring the plants lately erected, which are large users of Pig Iron, will all be in full blast and will take Iron in such quantities that there will be very little that will be shipped outside of what is already booked. Quotations are continued on a basis of \$17.50 for No. 2 Foundry. As evidence that prices are pretty uniformly maintained, an important buyer addressed an inquiry to five different interests for the price of a certain grade and each one in reply named the same price. There was no consultation between them and neither knew that the others had the inquiry. The increased number of cablegrams, while they have led to only a trifling business, at the same time indicate a nervousness concerning supplies. When they are compelled to have the Iron (and not before) they will pay current values. When they do that the situation is clearly in sellers' hands. Room has been engaged for several thousand tons, but it is not new business. The Iron was sold months ago, with the exception of some scattering small lots. There is nothing of interest to say of the Steel mill beyond the statement that they are making progress and every week's work is an increase over the preceding week. The Rod and Wire Nail mill will start up this week, but it will be some time before it will be going in full tilt. The Dimmick Pipe Works are placing their machinery and will be working in March. A part, if not all, of the Executive Committee of the Republic Iron & Steel Company are here this week to personally inspect and to decide upon additions and improvements. Plans have been matured and drawn months ago, and one can only infer from what is going on at the rolling mill that the action of the Executive Committee will be but the formal approval of and authorization to complete what has been commenced. When completed the Birmingham rolling mills will be equal in efficiency to any similar plant in the country.

The Coal situation is unchanged. Demand continues ahead of supply and the market is bid up to secure shipment. Mexico is an earnest applicant for a large amount for early shipment. New mines are being opened, but it requires more than a "presto, change" to get one into operation. The local consumption has largely increased with the advent of new industries and the increasing production of Coke is an important factor in consumption. Over 1000 new Coke ovens will soon be added to that interest.

The demand for machinery continues fine, with dealers still behind on orders and not yet seeing the end that evens up. The Hardware people say they have never had such a business. Our minor industries are chock full of business, and no sooner is one job out of the way than another offers. In this line it is much as it is in Iron. Each one wants to put in his order as a hurry job. All of which shows that business is pushing and cannot afford delay. Development of various kinds is one of the "on dits" in circulation and if financial affairs are favorable will probably mature into realities.

In Common Pleas Court, at Pittsburgh, on Monday, February 12, will be taken up a new suit by Gilbert Rafferty against Charles Donnelly, William P. Snyder and James Adair to recover five elevenths of \$520,000. The suit is a repetition of the litigation Mr. Rafferty began in March, 1897, and the charges of fraud in connection with the sale of coke lands are reiterated.

There is talk of a new Bessemer plant at the Wheeling works of the National Tube Company.

**New York.**Office of *The Iron Age*, 232-238 William street, {  
NEW YORK, February 7, 1900. }

**Pig Iron.**—The local market has been quiet. The majority of the large companies are holding firmly to prices both for early and later delivery, but a few furnaces which have recently blown in are hunting for business and are making some concessions. Prices are as follows: Lehigh and Schuylkill Irons, No. 1 Foundry, \$24 to \$25; No. 2 X, \$22.50 to \$22.75; No. 2 Plain, \$21.50 to \$22, and Gray Forge, \$18.50 to \$19.25. Southern brands are quoted: No. 1 Foundry, \$22.75 to \$23; No. 2 Foundry, \$21.50 to \$22; No. 1 Soft, \$22.25 to \$22.75; No. 2 Soft, \$21.25 to \$21.75; No. 3 Foundry, \$21.25 to \$21.75, and Gray Forge, \$19.25 to \$20.25.

**Cast Iron Pipe.**—There is a fair run of orders of moderate size, but the market continues somewhat irregular. An Eastern shop has recently captured an order for delivery in Ohio. We continue to quote \$29.50 to \$30 per ton for 8-inch Pipe, tidewater.

**Steel Rails.**—The mills are holding firmly to prices, but there are several lots of good size in the market for resale, the quantity being about 30,000 tons in the aggregate. These Rails are offered at cut prices, the owners having contracted for them in one case as low as \$18 at mill. Of course the fact that these Rails are of a given weight and section militates against their sale. Angle Bars are quoted 2.35c. to 2.40c., and Spikes 2.65c. to 2.75c., delivered.

**Finished Iron and Steel.**—An architectural foundry in this district which has not hitherto done Building work has appeared as the successful bidder on two structures at Seventeenth street and Fifth avenue, the material involved amounting to about 2000 tons of Steel and 800 tons of Cast Iron Columns. The Steel was secured by an Eastern mill. We quote: Beams, 2.40c. to 2.50c.; Angles, 2.40c. to 2.45c.; Universal Mill Plates, 2.65c. to 2.75c.; Tees, 2.40c. to 2.45c.; Channels, 2.40c. to 2.50c.; Steel Plates are 2.40c. to 2.60c. for Tank, 2.50c. to 2.75c. for Shell, 2.75c. to 2.90c. for Flange, 3.10c. to 3.30c. for Fire Box, 3.75c. to 4c. for Locomotive Fire Box, on dock. Charcoal Iron Plates are 3c. for C. H. No. 1, 3.50c. for Flange, and 4c. for Fire Box. Refined Bars are 2.20c. to 2.25c., and Common Bars are 2c. to 2.10c., on dock. Soft Steel Bars, 2.40c. to 2.45c.; Hoops, 2.70c. to 2.75c., base, delivered.

**Merchant Pipe.**—Quotations on Merchant Pipe in carloads are 50, 10 and 10 per cent. discount, delivered, and in less than carloads 50 and 10 per cent., f.o.b. maker's mill. On Casing the figures are: For carload lots, S. and S. Joint, 37½ per cent.; Inserted Joint, 32½ per cent.; for less than carload lots, S. and S. Joint, 32½ per cent., and for Inserted Joint, 27½ per cent., less 5 per cent. to jobbers, the prices for carload lots being delivered and for less than carload lots f.o.b. mill. On Boiler Tubes, 1½ to 2½ inch, the prices are 55 per cent. off on Steel and 50 per cent. on Iron; for Boiler Tubes, 2¾-inch and larger, 55 per cent. on Steel and 52½ per cent. on Iron, all subject to 5 per cent. on car lots, the prices for carload lots being delivered and on less than carload lots f.o.b. mill.

**Metal Market.**Office of *The Iron Age*, 232-238 William street, {  
NEW YORK, February 7, 1900. }

**Pig Tin.**—A most erratic market marked the week under review. London pushed prices high, reaching the highest point for the year to-day, when the cables named £134 10s. for spot and £132 10s. for three months' futures. This is over £6 higher than the price we quoted a week ago. The high London market had not much effect here, however, owing to the quietude which reigns in the Tin market here. And then the importers who purchased at low prices are anxious to realize profit and they are not willing to see the market change. The market closed to-day 29.25c. to 29.35c. for spot, but future delivery was freely offered as low as 28¾c. for March and 28¼c. for April.

**Copper.**—As to price, there is no change. The tone of the market is somewhat steadier, and while it is reported that consumers in the Valley are buying from hand to mouth, it is also stated that an exceedingly large export business is going through. We are still informed by reliable parties that the Calumet & Hecla interests have not sold a large block recently to American consumers. But it is known in the trade that export sales have been made at concessions. As far as we can learn, the last sale of C. & H. Copper was made during November of last year. This block was for delivery up to the

end of this month at 17c., which price was guaranteed. It is even said that certain consumers who were in the purchasing pool have been rather backward in taking up this Copper. The price for Lake is unchanged at 16½c. Electrolytic and Casting are strong at 16½c. The London market has advanced considerably, closing to-day £74 2s. 6d. for spot and £72 12s. 6d. for futures. Best Selected is quoted £76 5s. The latter price is just £1 higher than that of a week ago.

**Pig Lead.**—There is absolutely no change in the position of the market or in prices here. Prices of the American Smelting & Refining Company rule supreme at 4.70c. to 4.75c. for spot and futures. London has advanced 1 shilling 3 pence, and is quoted to-day £16 11s. 3d.

**Spelter.**—This market remains quiet but firm with the same prices ruling as those of last week—namely, 4.75c. to 4.80c. London is quoted unchanged at £22 12s. 6d. There is a rumor to the effect that a quantity of the metal which was purchased recently in the West for export and shipped via New Orleans to England is coming back to New York to be resold in this country. The original purchasing price was, of course, exceedingly low.

**Antimony.**—Is without change, Hallett's selling at 9½c., and Cookson's, 10½c. to 11c.

**Nickel.**—Is still firm and scarce. The demand is good and prices for wholesale lots remain unchanged on the basis of 38c. Retail lots are quoted as high as 45c.

**Quicksilver.**—Wholesale lots of 100-lb. flasks and over are quoted at \$51 per flask of 76½ lbs. The London market remains unchanged at £9 12s. 6d. for Rothschilds and £9 11s. 3d. for second hand.

**Tin Plate.**—The heavy demand continues. Prices are firm but unchanged. It is said that the Tin Can manufacturers are fully covering for the second quarter of this year. The American Tin Plate Company are quoting on a basis of \$4.84 per box of Standard 100-lb. cokes, f.o.b. New York, or \$4.65, f.o.b. mill.

The Carbon Steel Company of Pittsburgh are remodeling and considerably enlarging their acid open hearth steel plant. At present they have eight acid open hearth furnaces, ranging in capacity from 15 to 35 tons each. These are all being rebuilt and increased in size, seven of them to 50 tons capacity each and one to 35 tons. New cranes are being installed, and the Wellman-Seaver Engineering Company of Cleveland, Ohio, are furnishing a Wellman charger. The entire product of the Carbon Steel Company is acid open hearth steel, for which they have a heavy demand.

McGugin & Co. of Oliver Furnace, Ohio, are now operating their Olive Furnace. Their Buckhorn Furnace has not been in operation for some time. Charcoal is now used, but in the coming spring the firm expect to use a mixture of charcoal and coke. Coal mines are located on their property and they will make their own coke.

Samuel Forter, consulting and mechanical engineer, Murtland Building, Pittsburgh, has sold nearly 500 of the Forter water seal reversing valves, of which he is the inventor. Mr. Forter has furnished large lots of these valves to Germany, Austria, England, France and Canada. Practically all the large concerns in the United States have adopted the Forter valve. The Carnegie Steel Company, Limited, have in use about 80, the Lorain Steel Company 20, Shoenberger Steel Company 24, Alabama Steel & Ship Building Company 20, the latter the largest size ever made, being 42 and 48 inches in diameter. One concern in Austria have 22 of these valves in use. The Wellman-Seaver Engineering Company, Cleveland, Ohio, are sole agents for the Forter valve in the United States.

The Nashua Iron & Steel Company, Nashua, N. H., manufacturers of steel and iron forgings of all kinds, in forged or finished state, have just completed a forging 21 feet long, 25 inches in greatest diameter and weighing 31,400 pounds. It was made for a concern in Philadelphia.

It is not likely that the Bellefonte charcoal furnace of the Means & Russell Iron Company of Ashland, Ky., will ever again make iron. The furnace has been idle since 1893.

M. A. Hanna & Co., of Cleveland, Ohio, have purchased the holdings of Andrews Brothers of Youngstown in the Mahoning mines on the Mesaba range.

## PERSONAL.

George Burnham, Jr., of the Baldwin Locomotive Works, of Philadelphia, will sail for St. Petersburg, Russia, on February 14.

Benjamin F. Haldeman has resigned his position as superintendent of the Bessemer department of the Cambria Steel Company, at Johnstown, Pa. W. C. Catlin Geer has been appointed as his successor.

A. Otto Diechmann of Gustav Diechmann & Sohn, importers of English and American machine tools, has returned to Berlin after a prolonged business trip in this country, during which he visited over 100 plants. His firm are extending, being about to establish additional branch offices in leading German towns.

John H. Darby, managing director of the Brymbo Steel Company, Limited, Wrexham, and T. G. Littlebury are now visiting this country.

On behalf of the employees of the Jefferson furnace, D. J. Sinclair, secretary and treasurer of the Ohio Valley Iron Company, presented to George A. Dean, the general manager, an address and a clock.

Henry W. Oliver, president of the Oliver Iron Mining Company, in Pittsburgh, has gone to Florida for an extended stay.

Col. T. A. Meysenburg of St. Louis, who is a member of the Executive Committee and also district manager of the Southwestern District of the Republic Iron & Steel Company, has resigned from the latter position, so that he may be enabled to devote more time to the first named office. E. C. Haupter, superintendent of the company's Tudor Works, succeeds Colonel Meysenburg as district manager. The Southwestern District includes the Tudor Works at East St. Louis, and the Terre Haute and Wabash works, both at Terre Haute, Ind. The Chicago & Northwestern District has been subdivided into two districts, one of which is termed the Chicago District and the other the Northwestern District. The Chicago District covers the Inland Works at East Chicago, Springfield (Ill.) Works, and Central Works at Brazil, Ind. Wm. Barret Ridgely, formerly manager of the Chicago & Northwestern District, will manage the Chicago District, with headquarters at Chicago. The Northwestern District includes the Sylvan Works at Moline, Ill., and the Minnesota Iron & Steel Company, at Minneapolis, and is under the management of James G. Caldwell, formerly president of the Birmingham Rolling Mill Company, with headquarters at Minneapolis, Minn.

J. J. Campbell of the Carnegie Steel Company, Limited, has been appointed auditor and assistant secretary of the company.

William Larimer Jones, general manager of Jones & Laughlins, Limited, has been made general manager of the blast furnace plant of Laughlin & Co., Limited. Mr. Jones will succeed J. B. Laughlin, who is now in Italy because of ill health. Henry A. Laughlin, head of the ore interests of Laughlin & Co., Limited, has had charge of the work during his son's illness, but the duties involved have been too great. Mr. Jones will now have charge of the great amount of construction work that is now going on at the furnace plant, in addition to his duties as general manager of the American Steel & Wire works on the South Side.

J. Walter Rhodes of J. W. Rhodes & Co., iron and steel factors, Murtland Building, has gone to California to remain two months or longer.

Some changes have been made among officials of the Pressed Steel Car Company, at Pittsburgh. One new office has been created, that of comptroller, and W. O. Jacquette, formerly treasurer of the company, has been appointed to fill the new position. A. R. Fraser, formerly auditor, becomes treasurer; H. J. Gerhart, formerly assistant auditor, is made auditor; Purchasing Agent L. W. Jones becomes assistant to the president, and W. H. Schoen, formerly second vice-president, now occupies the position of vice-president, two secondary positions being abolished with the retirement of First Vice President J. W. Dickerson. The purchasing department of the company has been removed to the Wood's Run plant, and the auditing department has been taken to the Tradesmen's Building, where the Pressed Steel Car Company now occupy the whole of the tenth floor.

Alexander R. Peacock, first vice-president and general sales agent of the Carnegie Steel Company, Limited, has gone to Southern California for an extended stay.

L. Vogelstein, representing Aron Hirsch & Sohn of Halberstadt, Germany, the large copper merchants, returned last Saturday from a three months' European trip.



### The American Steel & Wire Company.

In submitting to the stockholders of the American Steel & Wire Company the financial statement published in *The Iron Age* the Executive Committee—I. L. Elwood, Wm. Edenborn and J. W. Gates—issue a circular which is substantially as follows:

"We congratulate our stockholders upon the profits shown for the year 1899 and wish to state that these profits were arrived at after making proper provisions, approved by Jones, Caesar & Co., for depreciation of buildings and machinery, and in respect of possible bad debts and outstanding discounts. An inventory of all material was taken on a very conservative basis. It shows that the company earned such excess of 7 per cent. on their preferred stock (which they paid) that they are in a strong financial position and able to begin the payment of regular dividends upon their common stock during the year 1900 out of the earnings of 1899, which they have this day declared at a meeting of the Board of Directors.

"It also shows that about 50 per cent. of the preferred capital stock is in actual cash or quick available cash assets. The company made large expenditures for coal mines and opening of same, in erecting coke ovens, in purchasing and opening iron ore properties, and in generally bettering and improving their plants during the past year. The company now own enough coal and coke properties to operate their entire works for the next 50 years and enough iron ore to operate their works for 30 to 40 years.

"The company have no bonded debt except a small amount of about \$100,000, not yet due (prepayment of which was offered and refused last year), and which is included in accounts payable. With substantially no bonded debt and with an earning power as shown in the inclosed statement, the preferred stock, we believe, may be classed among safe investment securities, as by the terms of the certificate of incorporation it has a preference as to assets and income, placing it substantially in the category of bond investments.

"With the prospects of business in the future, expectation of permanent dividends on both stocks may be entertained."

By order of the Board of Directors C. S. Roberts, secretary, has sent out the following:

"The annual meeting of the stockholders of the American Steel & Wire Company of New Jersey will be held at the office of the company, 60 Grand street, in the city of Jersey City, in the State of New Jersey, on Tuesday, February 20, 1900, at 11 o'clock a.m., for the purpose of electing five directors to succeed those whose terms of office then expire, and for such other business as may be submitted for the action of the stockholders.

"You are further notified that there will be submitted to the stockholders for their action certain proposed amendments to the certificate of incorporation, as herein-after stated, and for that purpose the meeting of the stockholders, so to be held on February 20, 1900, at 11 o'clock a.m., at the place above mentioned, has been directed by the Board of Directors of this company to be held also as a special meeting to consider and act upon such proposed amendments as the Board of Directors by resolution have declared to be advisable and are as follows—viz.:

"By specially conferring upon this company in their certificate of incorporation the power:

"1. To engage in and carry on in all respects the business of buying, acquiring, selling, operating and using mines and mining products of every kind and character.

"2. To engage in and carry on the business of constructing, buying, selling, leasing and operating railroads, wharfs, piers and kindred business and enterprises.

"3. To engage in and carry on and conduct the business of buying, selling, leasing and operating steamships and other methods of water transportation, and any and all business incident to and connected therewith.

"4. To guarantee the payment of and assume the obligations of other corporations, persons and firms.

"5. To redeem, retire or otherwise acquire and cancel the preferred stock of this company, as by the laws of the State of New Jersey provided and permitted.

"6. To have the Board of Directors fix the working capital of this company, in conformity with the present by-laws of this company.

"7. To have the Board of Directors elect an Executive Committee possessing the powers of the board, in conformity with the present by-laws of the company.

"8. To have the Board of Directors enabled to declare and pay dividends on the common stock of the company quarterly, out of the surplus or net earnings of the current dividend year, during such current dividend year."

The Navy Department announces that the new battle ships "Kearsarge," "Kentucky," "Alabama" and "Wisconsin" will all be completed and ready for service by next fall.

### OBITUARY.

CORTLAND N. GATES.

Cortland N. Gates, one of the oldest Pennsylvania foundry men, died January 27 at Wilkes-Barre, Pa., after a brief illness from pneumonia. He was born at Kingston, Pa., in 1822, and learned his trade as a foundryman in the Baldwin Locomotive Works, Philadelphia, subsequently establishing the Gates Foundry in South Wilkes-Barre, which enterprise he conducted successfully up to the time of his decease.

W. J. DEVINE.

W. J. Devine, who has been manager of the Frankfort Steel Forging Works of Ellwood City, Pa., for five consecutive years, died at his home here last Wednesday morning of typhoid pneumonia, from which he had suffered about three weeks.

NICHOLAS ROMER.

Nicholas Romer, senior member of the Romer Axe Company, Dunkirk, N. Y., died January 25, after an illness of four months, from bronchial trouble. Deceased was born in Denmark in 1836 and served his apprenticeship there as a tool maker. In 1859 he came to America, and was ever since identified with the axe business. He was first employed by C. L. Jeffords, then a well-known axe manufacturer in Jamestown, N. Y., and later as superintendent of the Francis Axe Company, Buffalo, N. Y., until 1876, when, in company with a younger brother, he started independently in the axe business at Gowanda, N. Y.

FRANKLIN HERSH.

Franklin Hersh, founder of the wholesale and retail Hardware, Iron and Steel business of F. Hersh & Sons, Allentown, Pa., died at his home in that city on the 29th ult. Mr. Hersh was over 79 nine years of age.

WILLIAM CLARKE CATLIN.

William Clarke Catlin, widely known in iron and steel circles, died at his home in Johnstown, Pa., on February 2. He was in his thirty-third year. He contracted a severe cold during the recent cold spell, which rapidly developed pneumonia and resulted in his untimely death. Mr. Catlin, eldest son of Henry G. Catlin, was born in Burlington, Vt. He spent his early life with his uncle, Charles A. Catlin, however, at Providence, R. I. Here he received his early education, and after leaving the Providence High School, entered the Sheffield Scientific School at Yale University. He graduated with honors in 1888. He immediately entered the employ of the Illinois Steel Company. His aggressiveness and executive ability and his successful introduction of numerous improved methods of manufacture soon won the admiration and esteem of his superior officers and good will of his subordinates. In 1891 he was made assistant superintendent of the Union Works of the Illinois Steel Company at Chicago, and in 1893 he was appointed general superintendent of the Joliet Works. Resigning from the employ of this company in 1897, he went to Johnstown, Pa., and assumed charge of the drafting department of the Cambria Iron Company. In October, 1898, he was made assistant to James H. Geer, Sr., superintendent of the mechanical department. He held this position and filled it in a most satisfactory manner until he was made superintendent of the Bessemer department on January 26 last. This position he occupied until the time of his death. Mr. Catlin was thoroughly acquainted with steel making and his death is a great loss to the Cambria Company. For the present his place in the Bessemer department will be looked after by F. G. Parker, the superintendent of the rolling mill. Mr. Parker formerly held the Bessemer position and he is recognized as one of the foremost of the Cambria company's trusted men.

The civil case of Louis S. Hoyt against the Shengango Valley Steel Company was on trial at New Castle, Pa., last week. The names of the defendants are Wm. E. Reis, president of the National Steel Company, William Patterson, G. B. Berger, John Stevenson, at present a heavy owner of the new Sharon Steel Company, and James McClane. Mr. Hoyt asks that he be permitted to subscribe and take 87 more shares of stock in the company, which he claims was by agreement allotted to him as his portion when the capital stock was increased, he claiming that the increased shares were to be divided *pro rata* among the share owners. The capital stock originally was \$300,000, and this was divided into 3000 shares of \$100 each. Prior to January 1, 1898, the capital stock was increased to \$1,000,000, making in all 10,000 shares. In January, 1898, the capital was increased to \$1,500,000, this making in all 15,000 shares. According to Mr. Hoyt's statement, the defendants threaten to divide the whole amount of the undivided shares among themselves.

## QUOTATIONS OF IRON STOCKS DURING THE WEEK ENDING FEBRUARY 7, 1900.

Cap'l Issued.		Sales.	Thursday.	Friday.	Saturday.	Monday.	Tuesday.	Wednesday
\$20,000,000	Am. Car & Foundry, Common..	44,542	14 -17	16½-17	16½-16½	16½-17½	17½-17½	16½-18
20,000,000	Am. Car & Fy, Pref. (7% Non-Cu.)	15,670	61 -62½	62½-63½	62½-64½	64½-65½	65½-66	64 -65½
19,000,000	Am. Steel Hoop, Common.....	54,805	45 -47½	46½-47½	46½-48½	47½-49½	49 -50½	46½-49½
14,000,000	Am. Steel Hoop, Pref. (7% Cu.)	8,265	82½-83	83½-84	83 -84	84 -84½	84½-86	84½-86
50,000,000	Am. S. & W., Common.....	122,935	57½-58½	57 -58½	57½-58	56½-58½	58 -59½	57½-58½
40,000,000	Am. S. & W., Pref. (7% Cu.)....	17,677	92½-95	94½-95	94½-95	94½-95	94½-95	94½-94½
28,000,000	Am. Tin Plate, Common, N. Y..	19,885	31½-33	33½-34	33½-33½	33½-35½	35½-36½	35 -36½
18,000,000	Am. Tin Plate, Pref., N. Y. (7% Cu.)	870	81½-81½	82 -82½	.....	.....	.....	.....
7,500,000	Bethlehem Iron.....	110	-58	.....	.....	.....	.....	.....
15,000,000	Beth. Steel, Par \$50, \$1 paid in.	3,080	.....	17½-18	-18	18½-19	18½-18½	-18½
7,974,550	Cambria Iron, Phila.....	71	-44½	-44½	.....	-44½	.....	-44½
16,000,000	Cambria Steel**.....	5,216	21½-21½	21½-22½	22 -22½	.....	-21½	-21½
11,000,000	Col. Fuel and Iron.....	50,230	43½-47	46½-48	46½-47½	46½-48	47½-48½	46 -48
46,484,800	Federal Steel, Common.....	78,784	53½-54½	54½-55½	55 -55½	56 -57½	56½-57½	55½-57½
53,253,500	Federal Steel, Pref. (6% Non-Cu.)	11,863	74½-75½	75 -75½	75½-75½	75½-76½	76½-77½	76½-77½
32,000,000	National Steel, Common, N. Y..	110,650	44½-47	47½-48	47½-49½	49½-52½	51½-53½	48½-52½
27,000,000	Nat'l Steel, Pref., N. Y. (7% Cu.)	2,375	.....	94 -95	-95	95 -95½	96½-97	-96
5,000,000	Penna., Common, Phila.....	240	.....	.....	80 -82	-78	.....	.....
1,500,000	Penna., Pref., Phila.....	.....	.....	.....	.....	.....	.....	.....
12,500,000	Pressed Steel, Common.....	6,522	56 -58	57½-58½	57½-58½	57½-58½	58 -58½	57 -58
12,500,000	Pressed Steel, Pref. (7% Non-Cu.)	585	-87½	87½-88	-87½	-88	-87½	.....
27,352,000	Republic Iron & Steel, Common.	52,618	23½-24½	24½-25½	25½-26	26 -27	26½-27½	25½-26½
20,852,000	Repub. Iron & Steel, Pref. (7% Cu.)	6,901	67½-68½	69½-70	69½-69½	69½-70	70 -70½	69½-70½
20,000,000	Tennessee Coal and Iron.....	104,070	86½-95½	96 -104	98½-101½	99½-101½	97½-101½	97½-101
1,500,000	Warwick Iron & Steel (par \$10)	185	-10	-10	-10	-10	-10	-10

\* Par \$50. \*\* \$1.50 per share paid in. † 6% guaranteed by Beth. Steel Co. Late Philadelphia sales by telegraph. ‡ Ex-dividend.

**Bonded indebtedness:** Am. S. & W., \$180,656; Am. Tin Plate, none; Am. Steel Hoop, none; Cambria Iron Co., \$2,000,000 6% debenture 20-year bonds, 1917, payable option 5 years, assumed by Cambria Steel Co.; Federal Steel Co., \$13,300,000 Illinois 5%, \$7,417,000 R. J. E. R. R. 5%, \$1,600,000 Johnson 6%, \$6,782,000 D. & I. R. R. 5%, \$1,000,000 2d D. & I. R. R. 6%, \$10,000 land grant D. & I. R. R. 5%; National Steel, \$2,561,000 6%; Tennessee C. & I. R. R. Co., \$8,367,000 6%, \$1,114,000 7%, \$1,000,000 7% cu. pref.; Pennsylvania Steel, \$1,000,000 6% Steelton 1st 1917, \$2,000,000 6% Sparrow's Point 1st 1922, \$4,000,000 consolidated, both plants; Bethlehem Iron, \$1,351,000 5% maturing 1907. Interest and principal guaranteed by Bethlehem Steel Co. Republic Iron & Steel, none; Warwick Iron & Steel, none. Colorado Fuel & Iron Co., Col. Fuel Co. Gen. Mort. 6% \$890,000, Col. Coal & Iron Con. Mort. 6% \$2,810,000, Col. Fuel & Iron Gen. Mort. 5% \$2,303,000. Also outstanding \$2,000,000 preferred stock with accumulated dividends of \$640,000 to June 30, 1899.

## Iron and Industrial Stocks.

During the week under review there was a very heavy buying movement in a number of the Steel stocks and a substantial advance was scored, which, however, was checked by realizing sales to-day, the market closing under the best in nearly all the active stocks. The issues which were prominent in the advance were the Tennessee Coal & Iron Company, which gained heavily; the National Steel, American Tin Plate, American Steel Hoop, Colorado Fuel & Iron, Federal and Republic.

	Bid.	Asked.
American Bicycle Company, Common.....	17	19
American Bicycle Company, Preferred.....	47	51
American Bicycle Company, Bonds.....	91½	92½
E. W. Bliss, Common.....	132	150
E. W. Bliss, Preferred.....	125	.....
Cramp's Shipyard Stock.....	80	84
Diamond State Steel.....	5½	5½
International Silver, Common.....	9½	10
International Pump, Common.....	18	20
International Pump, Preferred.....	64½	65½
National Tube, Common.....	46½	47
National Tube, Preferred.....	91½	92½
Otis Elevator, Common.....	27	30
Otis Elevator, Preferred.....	88½	90
Pratt & Whitney, Common.....	3½	5
Pratt & Whitney, Preferred.....	46	54
U. S. Projectile.....	95	105
Sloss & Sheffield Steel & Iron, Common.....	30½	32
Sloss & Sheffield Iron & Steel, Preferred.....	70½	72
Tidewater Steel.....	16½	16½
U. S. Cast Iron Pipe Company, Common.....	6½	7½
U. S. Cast Iron Pipe Company, Preferred.....	43½	45
H. R. Worthington, Preferred.....	101	101½

W. K. Rixby, president of the American Car & Foundry Company, has issued the following report for the first nine months:

Gross earnings from all sources:	
For first quarter ended May 31, 1899.....	\$9,157,796
For second quarter ended August 31, 1899.....	10,033,175
For third quarter ended November 30, 1899.....	10,081,937
Total.....	\$29,272,908
Deduct cost of materials used, operating expenses, &c., for the nine months above referred to.....	26,555,496
Net earnings for nine months.....	\$2,717,412
Dividends on \$29,090,000 preferred capital stock issued:	
No. 1, for first quarter, paid July 1, 1899.....	\$500,075
No. 2, for second quarter, paid November 1, 1899.....	500,075
No. 3, for third quarter, paid February 1, 1900.....	500,075
	1,527,225
Surplus on December 1, 1899.....	\$1,190,187

The following has been sent out with reference to the operations of the Republic Iron & Steel Company: Although the company were incorporated in March the company did not get full possession of the different independent properties until June 1. From that date until September 1 the business of the company was mainly filling old contracts made before the consolidation. In spite of this handicap, however, the earnings up to January 1 have been as follows:

Net earnings.....	\$2,714,550
Dividends on preferred stock.....	730,069
Leaving balance to surplus.....	\$1,984,481

It is to be noted that all repairs to plants have been charged to operating expenses.

At the annual meeting of the stockholders of the Berlin Iron Bridge Company, held at the office of the company in East Berlin, Conn., on Monday, January 29, the capital stock was increased to \$750,000. The following Board of Directors was elected: Chas. M. Jarvis, Frank L. Wilcox, S. H. Wilcox, H. H. Peck, Geo. H. Sage, D. E. Bradley and Seymour N. Robinson.

A Boston dispatch quotes Treasurer A. F. Luke of the National Tube Company as saying that a phenomenal business has been done by the company during the past year, and that it is the intention of the company to declare a dividend on the common stock at the annual meeting, which will be held early in the spring.

The Bethlehem Steel Company have declared a dividend of 50 cents per share, payable March 1, to stockholders of record on February 15.

## Trade Publications.

**The Stewart Gas Blast Furnace.**—An exceedingly fine publication has been issued by the Chicago Flexible Shaft Company, 158 and 160 Huron street, Chicago, describing this furnace. It combines on one base the following: Rotary positive pressure blower, slow speed, for delivering air to the furnace at a constant pressure of 1 pound; crucible furnace for melting soft metals and for heating lead, both for hardening or for heating oil for tempering; forge for heating small pieces for hardening, annealing, tempering or forging; muffle furnace for hardening and annealing, adapted to an almost endless variety of small work. All this is in compact form ready to operate by simply turning a valve and lighting a match. It is made with burners adapted to different kinds of gas.

**Railway Supplies.**—Crerar, Adams & Co., Fifth avenue and South Water street, Chicago, have issued an exceedingly comprehensive and therefore unusually valuable catalogue, covering the extensive line of articles embraced under the general description of railway supplies. The book consists of over 500 pages, but, notwithstanding its size as thus indicated, it is printed on thin paper of good quality and is of such form as will enable it to be easily carried in the pocket. It is substantially bound in flexible leather covers. The contents cover all kinds of machinery supplies, tools of a varied character, much of what is ordinarily called heavy hardware, and the numerous highly finished products entering into the furnishing of cars. The assortment is so great that an enumeration would appear to cover the stocks ordinarily carried by houses representing a dozen different trades. The last 25 pages of the catalogue are used for the purpose of giving all kinds of engineers' tables and much useful information which will be found valuable by engineers and others connected with the practical branches of the railroad business.



## The New York Machinery Market.

Office of *The Iron Age*, 232-238 William street, {  
NEW YORK, February 7, 1900. }

In the general situation there is no change. In all machinery lines, with the one single exception of wood working machinery, prices are firmly held. In power transmitting machinery the inability to deliver promptly on the part of the manufacturer continues very noticeable. Prices are exceedingly firm. Merchants in this market do not show a disposition to fight very hard for complete equipments on big work, as under the present pressure at their shops the general transient trade is much more lucrative. The volume of this trade is said to be great. This may be taken as an indication that many industrial enterprises are still adding to their equipment. Manufacturers are beginning to set aside the machinery which they intend exhibiting at the Paris Exposition. While the individual exhibits of such machinery will be relatively small, the entire lot when taken collectively will doubtless cut quite a hole in American production, and it is certain that many machines will be shipped to France which would be greatly appreciated in consumptive channels here. It is really like shipping the goods six months in advance, however, as the machines will without doubt be consigned to European agents immediately after the exposition. In fact, we know of instances where European agents have already arranged for the purchase of the tools which will be exhibited under the names of the American builders. In some instances the French representatives of the American concerns will have entire charge of the exhibits.

While machinery builders are steadily bridging the wide gap between the date of order and delivery, the merchants with a heavy stock of machinery purchased some time ago still have the advantage of the market. An instance verifying this statement came to the notice of the writer in a roundabout but reliable way last week. A certain European purchaser arrived in this market recently with a list of 104 tools which he intended purchasing. His first visit was to a large house in this city. After going over the list with the head of the export department of the house he decided to leave orders for something like 26 machines, stating that it would scarcely be fair to other builders to do better than this. The machinery concern were able to give prompt delivery on practically all of the machines included in the list. The European purchaser traveled East and then went West, and everywhere was confronted with the tale of far distant delivery. He came back to the New York house, where he could obtain prompt delivery, and increased the order to 102 machines. The New York firm who were awarded the contract had the advantage because they had a plentiful stock of machine tools, while the builders of the self same tools had no stock and were working on back orders. It is said of this New York house that at the close of a certain month of last year one of the partners telegraphed to another member of the firm who chanced to be in the West: "We have done more business this month than during any other year of our existence."

E. B. Hotchkiss, a director of the Société Anonyme Des Etablissements Adolphe Janssens of Paris, France, who has spent several weeks in this country, sailed for Europe to-day. Mr. Hotchkiss stated to a representative of *The Iron Age* that his visit to this country was to hasten deliveries on orders for machinery placed some time ago, to arrange agency contracts with additional American concerns, to purchase machinery and to look after matters pertaining to the exhibition of American machinery at the Paris Exposition. At present this company maintain three warerooms, and their headquarters in Paris, one wareroom in Brussels and one in Lille, France. They are expecting soon to open a branch in Switzerland and one in Russia.

While here Mr. Hotchkiss purchased between \$600,000 and \$700,000 worth of machinery. A large portion of this is to be placed in storage at Antwerp. The storehouse at Antwerp is planned on account of the low duty required under the customs laws of Belgium, as the company can better afford to maintain a stock in that country. At Brussels and the various other European cities mentioned above the company conduct showrooms and sales departments only. The bulk of the machinery purchased will be sent to Antwerp direct, where it will be placed in storage, crated and intact. When orders are received at any of the various sales departments the stock at Antwerp will be drawn upon. This will enable the company to offer American machinery at spot delivery.

Among the American companies which are now being represented by the company of Adolphe Janssens are:

Acme Machine Company of Cleveland.  
Baker Brothers of Toledo.  
Standard Pneumatic Tool Company of Chicago.  
Meadville Vise Co. of Meadville, Pa.  
Warner & Swasey.

Cincinnati Milling Machine Company.  
Bickford Drill Company.  
J. A. Fay & Egan Company.  
Landis Tool & Machine Company.  
Bullard Machine Tool Works.  
Hendey Machine Company.  
Becker & Brainard Milling Machine Company.  
Pond Machine Tool Works.  
Niles Tool Works Company.  
Newark Machine Tool Company of Newark, N. J.  
Beaman & Smith.  
Springfield Machine Tool Company.  
Springfield Mfg. Company of Bridgeport, Conn.  
Prentice Brothers Company.  
Flather Machine Tool Company.  
Mark Flather Planer Company.  
Powell Planer Company.  
New Haven Mfg. Company.  
Cincinnati Shaper Company.  
Potter & Johnston.  
Perry Ransom of Oshkosh, Wis.  
O. S. Walker of Worcester.  
Norton Mfg. Company, and others.

In speaking of the general situation in Europe, Mr. Hotchkiss said: "Everything points to a long continued prosperity and demand for American machinery in Europe. While orders have fallen off a little recently, this fact should not be looked upon with alarm, as it is due to the fact that people ordered largely from stock when prices commenced to rise, and they have been exhausting their stock during the period when American builders felt the lull. There has been nothing to indicate a change in demand. While the smaller tools hold their own very well, the demand for the heavier ones is constantly increasing. Railroad shops have for some time been slowly adopting American systems, and this necessitates their changing the equipment of their shops. The fact that many European manufacturers have noticed that American manufactured goods have been given the preference in foreign markets which the Europeans always controlled has started them to thinking. Even despite the low rate of labor in Europe, which costs about one-fourth as much as labor costs in America, the European manufacturers are finding that through improved and advanced factory methods the Americans can produce better goods at a lower price. In consequence they are beginning to equip their shops with American tools, according to American methods. This will necessitate the purchase of much American machinery, and then the concerns who were pioneers in adopting American machinery in Europe realize its superiority and keep adding to their plant and continue to replace old machines. There was, without doubt, a considerable amount of very cheap American machinery, however, sold in Europe a short time ago, but that was before the European purchasers were posted as to the reliability of American builders. Now they are better informed and recognize the merits of individual American machines. The visits of European engineers to the United States have also helped about this condition, and now the good American concerns are well known in Europe. There is much activity in the building of automobile works. Shipbuilding plants are also putting in large quantities of American machinery and are taking a good deal of interest in the working of pneumatic tools. Electrical concerns are also advancing rapidly in the way of American methods and shop equipment." It may be interesting to note that Mr. Hotchkiss received his mechanical training and experience with machinery in this country. His home is at Bridgeport, Conn. He was formerly employed at the New Haven locomotive works of the N. Y., N. H. & H. R. R. He then went into the employ of E. P. Bullard, at Bridgeport, and later went with Wheeler & Wilson of Bridgeport, and the Duquesne Mfg. Company of Pittsburgh. He went to Europe to superintend the erection of the large bicycle works of Henri Pieper at Liège, Belgium, and during the last two years has been a member of the firm of Adolphe Janssens.

The Simonds Mfg. Company of Fitchburg, Mass., are extending their plant and are ordering new machinery equipment. We understand also that they have adopted the use of roller bearings throughout the shop and have awarded the contract to the Hyatt Roller Bearing Company.

The Q & C Company, whose New York warerooms are located corner of Church and Liberty streets, have just been awarded a contract for a pneumatic tool equipment from the New York Central Railroad. The tools will be used by the bridge building department.

F. Verdon & Co. of Hoboken, N. J., who suffered the loss of their plant through fire last week, are buying a new equipment for the rebuilding of their works. The company build gas engines, &c.

Gould & Eberhardt of Newark, N. J., have received an order for an entire machine shop equipment for the Murphy Varnish Company of Newark, N. J.

## The Cleveland Machinery Market.

Office of *The Iron Age*, The Cuyahoga,  
CLEVELAND, February 5, 1900.

The temporary lull which was noticed by a number of concerns during the first two weeks in January is a matter of history, and the normal or rather abnormal demand of the fall months is again the rule. The present volume of orders for machinery is fully as large as in any previous month, and some seem to think that the demand is even heavier than ever before. One or two manufacturers of machinery who have always enjoyed an extensive foreign business report that they have received practically no orders from abroad during the past month, but they treat the condition as a matter of course, caused by the deliberation with which foreign manufacturers recover from their inventories. Calls for machinery for additional equipments seem to be the rule, and while some large contracts are being filled the demand is general and covers all varieties of machinery. Manufacturers of electrical machinery report unusual activity in their lines. More factories than ever before are being equipped with electric lighting and power appliances. The demand for street railway equipment is also very strong, and probably more miles of electric railways will be built in this section during the coming spring than ever before.

A number of local foundries have been badly embarrassed during the past two weeks by a strike of core makers. As a result a number of machinery manufacturers have been unable to secure deliveries on castings, but the situation has not been as bad as it might have been, because all of the leading machinery manufacturers have made it a rule, as far as possible, to keep a stock of castings on hand. The demands of the core makers have been considered very arbitrary, and the molders have not shown an inclination to back them in their demands. Last Wednesday the core makers went back to work, pending a settlement, which will probably be arranged at a meeting of the foundrymen, to take place this week. The foundries are crowded with work, and an extended strike would prove disastrous. Iron, steel and forgings of nearly all varieties seem to be coming somewhat easier than in months past. Coal supplies are also coming in promptly.

Cleveland and vicinity has furnished an excellent field of late for manufacturers of pumping machinery. A noteworthy contract which will probably be closed in the near future is for five engines of large capacity for the Cleveland Water Works Department. Bids for these engines were opened last week, and the figures quoted have proven a disagreeable surprise to the city officials, and they demonstrate clearly the great advance that has been made in the price of machinery during the past year. In 1895 the city was quoted a price of \$64,350 on a 20,000,000-gallon engine by the E. P. Allis Company of Milwaukee. Through a bonus offered for additional efficiency the price of the machine came to about \$75,000. In the bids for a similar engine which were opened last week, the Allis Company made the lowest figure, \$147,000. The Holly Mfg. Company of Lockport, N. Y., bid \$156,600. The J. F. Blake Company also put in a bid, but they wanted 20 months to do the work, consequently the bid was rejected. For two or four 25,000,000-gallon engines the bids were as follows: Holly Company, two pumps, \$313,200, four pumps, \$619,600; Allis Company, two pumps, \$330,000, four pumps, \$645,000; Blake Company, two pumps, \$337,800; four pumps, \$651,600. The Worthington Company did not bid, although the specifications were altered to let in that company. The high prices asked caused the Board of Control to recommend that all bids be thrown out, but the Allis Company asked to be allowed to show where their prices were reasonable, which was granted. This will be done before the City Council within the next few days. The Allis Company claim that the 20,000,000-gallon pump previously purchased cost them \$90,000 to build, although they received but \$75,000 for it. Allowing for a 10 per cent. profit, they claim the price should have been \$100,000, and with the 50 per cent. advance in the price of material now existing, they claim their bid of \$147,000 is a very reasonable one. The city officials believe the bids are about 25 per cent. higher than they should be.

The Conneaut Water Works & Supply Company, who supply water to the city of Conneaut, are installing a filter system, the product of the O. H. Jewell Filter Company of Chicago. The water is to be filtered through two 15-foot gravity filter tanks, the water being mixed before entering with an infusion of sulphate of alumina, a highly astringent compound, which envelops and attracts all foreign matter as well as bacteria or germs. This is deposited on top of the filtering sand and the water forced through it comes out perfectly clear and pure. It is guaranteed that 97 per cent. of the impurities are removed. This system is in operation in Lorain, and has recently been adopted at Granville, Ohio, and practically adopted at Youngstown.

The Erie Railroad Company have decided to install a pumping station for their yards and shops at Youngstown. Each of the water tanks through the city will be supplied by artesian wells, the pumps to be operated with gasoline engines. The daily consumption of the company at this point is over 300,000 gallons. Heretofore the water has been supplied by the city. The contracts have not yet been placed.

The city of Elyria has voted to sell bonds to the amount of \$300,000, the money to be used in enlarging and improving the water works system. It is the plan to erect a pumping station and pump water from Lake Erie, a distance of 12 miles. Last Thursday the council voted to employ an engineer to prepare estimates.

The Cleveland City Railway Company and the Cleveland, Elyria, Berea & Oberlin Electric Railway Company have recently placed some extensive orders for motors and dynamos with the Cleveland office of the Westinghouse Electric & Mfg. Company. The second road mentioned will build an extensive power house at Elyria, from which their entire system will be operated. Two 500 kw. generators have been ordered, also a battery of Sterling boilers. A 750 horse-power engine will be required, but the contract for this has not yet been placed.

The electric method of power transmission seems to be constantly growing in popularity in this section, and a number of large manufacturing concerns have adopted this method or are planning to do so; consequently there is a large demand for electrical equipment.

The Acme Machinery Company are the latest concern to adopt this system. A large addition to their plant has recently been erected, and this, together with the old factory buildings, will be equipped for electric drive. A separate power house, 50 x 40 feet, is under way, and contracts for electrical equipment have been placed with the Elwell-Parker Electric Company of this city. The contracts call for a 100 kw. generator, which will be direct connected to a 150 horse-power automatic engine furnished by the Skinner Engineering Company of Erie, Pa. The boilers will be furnished by the Babcock & Wilcox Company of Brooklyn. The various departments will be operated by six Elwell-Parker motors, aggregating 70 horse-power. The Elwell-Parker Company are also furnishing motors for a large equipment of special hoisting and conveying machinery, built by the Brown Hoisting & Conveying Company of this city for the Carrie furnaces of the Carnegie Steel Company. Also 225 horse-power motors for a large ore handling plant being built by the Brown Company for a Lake Erie port.

The Standard Welding Company have recently completed a new electric power house for furnishing current for their electric welding process. A new General Electric Company's generator was installed two weeks ago. It is a constant current machine, 350 kw., direct connected to a 500 horse-power Ball & Wood marine type engine. The Standard Welding Company are constantly extending the uses of their electric welding process. One of their latest productions is a hollow transmission rod for chainless bicycles, made by welding a section of heavy gauge tubing to forged lugs. It is claimed that this rod will yield to side strain better than the solid, will materially lighten the weight of the bicycle and is fully as strong as the solid rod. The company are also prepared to demonstrate a great saving by this process in the building of motor vehicle frames.

Speaking of motor vehicles, this industry is developing wonderfully in this direction, and scarcely a week passes but what new factories start up. Of course, the majority of them are on a small scale and largely for experimental purposes, but for all that some very promising concerns with plenty of capital have lately entered the field. Among these is the Baker Motor Vehicle Company, at the head of which is Walter Baker of the American Ball Bearings Company of this city. Mr. Baker has done considerable experimental work in electric vehicles, and is one of the best known experts on this subject in this section. The new company have erected a commodious factory on Jessie street, which is now being equipped with machinery. An unusually light electric vehicle will be built.

The Winton Motor Carriage Company, who are the pioneers in the manufacture of gasoline vehicles in this country, have recently added considerable machinery to their factory equipment, and are now turning out complete vehicles at the rate of one a day. A new model has been brought out for 1900, and the increased cost of material has been so pronounced that the company have increased the price of their vehicle from \$1000 to \$12000. A light racing vehicle has just been completed which will be used to compete in the international race, to be run from Paris to Lyons next June. The Winton Motor Vehicle Company have established a New York branch office at 120 Broadway, in charge of Owen & Chamberlin.

The Cleveland Machine Screw Company, manufacturers of automatic screw machines and electric motor



vehicles, are shipping samples of both lines for the Paris Exposition. A. L. Moore, president of the company, sailed for Paris last Thursday to arrange for the exhibit. The company have several new styles of vehicles which they figure will create a decided sensation in Paris, where their products in this line have all been disposed of in the past.

It is reported that H. A. Lozier, the bicycle manufacturer, whose firm are now members of the American Bicycle Company, will embark in the motor vehicle industry on his own account. He has lately placed in operation, at Toledo, a plant for the manufacture of naphtha and gasoline launches, and it is stated that he will erect a large plant at Shelby, Ohio, for the manufacture of motor vehicles. The report is not denied at the company's headquarters.

J. J. Grant of the Grant Machine Tool Works has recently designed a small foot power lathe which shows a number of new and desirable features. The company are preparing to manufacture these in quantities. The call for all of their special machinery continues very strong, the demand for their 44-inch turret chucking and turning machine being beyond all expectations.

The Shelby Steel Tube Company are making some extensive alterations in their various plants. At the Toledo mill two new buildings, 80 x 190 and 60 x 132, have been erected, to be used as piercing and rolling mills. The use of oil for fuel has been abandoned, because of an extensive advance in price, and three large gas producing machines will be installed. Compressed air will be used extensively in this plant, and a large compressor has been installed. In the future nothing under 2-inch tube will be produced at this plant, and boiler tubing will be the specialty. At Greenville, Pa., extensive improvements are under way. The Hartford plant is also undergoing extensive alterations, and in future this mill, together with the Shelby and Albany mills, will produce all of the bicycle tubing made by the company. After this season the bicycle business will be confined wholly to the Hartford and Albany mills. The report that the plant at Ellwood City, Pa., is to be abandoned is denied by the company. It is not being operated at the present time, but the machinery is intact and the mill will be maintained as an auxiliary plant. The seamless steam pipe flanges recently brought out by this company are meeting with excellent reception for Government navy use, and they are enjoying a very large sale in this specialty.

C. O. Bartlett & Co. are at work on what is said to be the largest order for paint machinery ever placed. It is for a new plant of the Consumers Paint Company of New York City. They are also at work on another order for cement dryers for the Castalia Portland Cement Company of Castalia, Ohio.

The S. M. York Company, manufacturers and dealers in machinery, by placing orders ahead have succeeded in securing quite an additional stock of general machine tools, especially lathes. This increased stock has necessitated additional floor space, and the company have leased a large storeroom at 36 South Water street, adjacent to their headquarters. They report the demand for machine tools as considerably better than the early part of January and an improvement over December. Judging from inquiries the demand is growing stronger. For their own line of radial drills they are three months behind on orders and are losing rather than gaining ground. They have just added to their line a new emery grinder, which is a very convenient machine for shop use. It has wide bearings and is made heavy and substantial.

The Pelton Engineering Company, manufacturers of electrical appliances, have decided on a new departure in operating their plant with a new steam turbine of their own design. The machine is still in the nature of an experiment, but it has proven very efficient. They claim that it can be gauged down to a speed of from 800 to 1000 revolutions per minute and still hold its efficiency. They propose to form a company for the manufacture of engines.

The Acme Machinery Company, manufacturers of bolt threaders, headers and nut tappers, report a flood of inquiries during January, and the indications are that business is on the increase. The call for bolt headers of the largest size is unusual. Two 26-ton bolt headers were shipped abroad last week. The complete line of samples for the Paris Exposition was finished this week and will be shipped at once. To accompany the exhibit the company have published a catalogue describing the line in detail. The book is neatly gotten up and is printed in French, German and English. Two new machines, wholly distinctive from anything before built by the company, are described therein. One of them is an automatic bolt threading machine and the other a nut tapper. They are similar in appearance and construction. The bolts or nuts are shoveled by an attendant into the hopper of the machine and are automatically placed by it into position to be worked upon, then threaded or tapped and ejected; the operator or workman spending

his time in a general care for the machines under his charge, filling up the hoppers, testing the work, &c. The bolt threader has a range of work from  $\frac{1}{4}$  to  $\frac{1}{2}$  inch up to 4 inches in diameter. The capacity of the machine is 8000 bolts per day of ten hours. One man can attend to ten machines. The nut tapping machine has a range of work from  $\frac{1}{4}$  to  $\frac{1}{2}$  inch nuts, and each machine can tap 16,000  $\frac{3}{8}$ -inch bolts per day of ten hours. One man can attend to ten machines, making the output of tapped nuts per day 160,000.

The well-known firm of Warner & Swasey, manufacturers of screw machinery and telescopes, have been incorporated as a stock company by W. R. Warner, Ambrose Swasey, W. E. Reed, W. M. Allen and P. A. Swasey. The capital stock is \$500,000, and the officers are as follows: W. R. Warner, president; Ambrose Swasey, vice-president, and Wm. E. Reed, secretary. The company report an increased volume of business since the first of the year, although the foreign orders have fallen off considerably since that time. They are preparing to ship their exhibit of screw machines to the Paris Exposition, and have decided to also send a 12-inch telescope just completed.

The Cleveland office of the Marshall & Huschart Company, machinery dealers, report the business as coming in heavier than before. A notable contract closed recently was one for a complete machine shop equipment for the Republic Iron & Steel Company, at Youngstown.

A shaft which is said to be second only in size to the shaft used in the famous Ferris wheel, is being produced by the Cleveland City Forge & Iron Company of this city, for the Glasgow Street Railway Company of Glasgow, Scotland. The original forged ingot weighed over 50 tons, and when finished the weight of the shaft will be 35 tons. It is 25 feet long and from 26 to 37 inches in diameter. It is being drilled with a 10-inch bore.

The Cleveland Twist Drill Company reported a slight lull during the early part of January, but since then the volume of orders has been heavier than ever before. An advance of 5 per cent. was declared on twist drills on February 1.

The Chisholm & Moore Mfg. Company have had an increased call for their pneumatic cranes and hoists since the first of the year. During the past two weeks they have shipped a 10-ton hand power crane to Boston parties, a 15-ton pneumatic crane to Pittsburgh, a 10-ton pneumatic crane to Pennsylvania, one of the same size to Connecticut, also one for a concern in this city. They have also made several large shipments in portable pneumatic hoists. A new catalogue is now being prepared which will describe several innovations in the line of pneumatic hoists and cranes. The Chisholm & Moore Company say that the orders for spring deliveries on their American standard railway joint are opening up larger than ever before. A large portion of this demand is coming from new electric railway projects.

The Garry Iron & Steel Roofing Company have received a contract for structural iron work for a new plant for the National Steel Company, at New Castle, Pa. The building is to be 150 x 80 feet.

The Continental Beet Sugar Company of Cleveland are erecting at Fremont what is said to be the first beet sugar factory in the State of Ohio. The plant will cost \$500,000, and will have a capacity of 40 tons of sugar per day.

The Bellaire Steel Works, at Bellaire, owned by the National Steel Company, was badly damaged by fire last Wednesday. A ladle car loaded with melted cinder was upset in some way while passing the electric building and laboratory, and the huge ladle poured its contents into the building, setting it on fire. The entire building and all the valuable machinery was a total loss, also the laboratory adjoining. The loss of the electric machinery will cause the works to shut down. The loss will be fully \$100,000.

The Brown Hoisting & Conveying Machine Company are erecting an addition to cost \$2000, and the Hill Clutch Company are building a \$1000 addition to their offices.

The American Machinery Company, Grand Rapids, Mich., have issued a folder which gives a selected list of business concerns now using the company's Oliver wood trimmers. Some of these concerns have as many as 50 trimmers in their establishments. A peculiarity of the list is that while it is an extensive list, each one is rated in R. G. Dun & Co.'s reference book at over a million dollars. In this list none of the company's railroad and foreign customers are included. It is a remarkable list of patrons, and shows the high character of those who are using the Oliver wood trimmers.

The Pressed Steel Car Company of Pittsburgh have furnished 30 new low body steel cars for the Philadelphia & Reading. They are of an entirely new design, and intended for the transportation of pig iron, steel billets, &c.

# HARDWARE.

## Condition of Trade.

ALL the indications point to a very satisfactory volume of business during the present month. There is a liberal movement of merchandise, but it is for the most part in relatively small lots, both wholesale and retail merchants being disposed to purchase only for their early requirements. This policy necessitates the placing of many sorting up orders by the jobbers, the aggregate of which is considerable. There is, however, a marked difference in the character of the buying this year as compared with last, and a conservatism which was not then at all general is now prevalent. At the same time there is a confident feeling in the market and merchants are anticipating that they will be able to dispose of their high priced goods before any serious break in prices occurs. There is no doubt that jobbers are desirous of diminishing their stocks promptly, and more than the usual number of traveling salesmen are on the road and prices are a little more flexible and yielding than they have been. The jobbers, however, are careful not to break the market openly, lest a spirit of distrust take hold of the trade. Careful retailers, among whom are many farsighted and experienced merchants, are taking a similar view of the situation, and are limiting their purchases to goods of which they have urgent need, preferring to keep their stocks down as much as possible, as they are aware that when the break occurs the retail merchants, if at all fully stocked, will be those who will feel it most. Reports from retailers in regard to the condition of trade are somewhat conflicting. There is no doubt that high prices and the disfavor with which combinations are regarded in the popular estimation are doing something to restrict sales, and the question as to the extent to which this will affect the market is an important one. In a good many places retail business is reported very quiet. In others it continues quite satisfactory. The gatherings of retail Hardware Associations, so many of which occur this month, naturally attract the attention of both manufacturers and jobbers who are interested in trade development. It remains to be seen what the practical effect will be. Both jobbers and manufacturers are naturally desirous of standing in well with the retailers, and the indications are that these organizations will have considerable influence in the trade. They will certainly be able by wise and united action to secure a proper recognition of the interests of the retail merchant, which have sometimes been disregarded by other classes of trade. Much good will undoubtedly result from the opportunity for conference and acquaintance, as well as more definite action on the various questions which will come before them. Reports from manufacturers indicate a desire on their part for orders, but a general conservatism in the making of contracts and in upholding prices. It is recognized that the present is a critical time in the market, and if both jobbers and manufacturers refrain from weakening too much in their prices the promise for maintenance of values for the rest of the season will be excellent.

## Chicago.

(By Telegraph.)

The volume of business in Shelf Hardware is running larger than at the corresponding time last year. January was a remarkably heavy month, the condition of trade in that month having been much better than ever known in the first month of the year by veteran merchants. February is of course always expected to surpass January, but from present appearances it is destined to run much in excess of February of last year. The demand is covering all classes of merchandise, including staple goods, Builders' Hardware, Mechanics' Tools and the long line of general articles required by agricultural sections and by residents in cities and towns. The orders now being laid out on merchants' floors are of a most varied character. Jobbers are undoubtedly profiting considerably from the high prices now ruling in such goods as are to a great extent sold direct by manufacturers to retailers. The higher prices naturally deter retailers from laying in large stocks but influence them to purchase in small quantities as their necessities require. This turns their attention more largely to jobbers, from whom they can more readily buy in this way. The prosperous condition of the country keeps retail stocks moving rapidly, and therefore necessitates frequent orders for other goods. It seems certain from present appearances that Hardware manufacturers will again this spring find themselves unable to supply the trade promptly. An instance of this kind is seen in Wire Cloth, which is now exceedingly scarce. Jobbers' stocks here have been drawn upon by jobbers in other sections, both East and West. Prices are advancing, \$1.60 being already named to retailers by the local jobbers, and it is believed that before the season is over the price will reach fully \$2. The scarcity of Wire Cloth is affecting the supply of Screen Doors and Window Screens, manufacturers of these articles being unable to get enough Cloth to increase their output as they should.

## St. Louis.

Inspection of jobbers' assembling rooms shows that the trade's wants have not by any means been completely anticipated. Buying continues and reaches from consumer to factory. Jobbers here report January sales as greater than last year. All lines figure in the purchases, particularly Tinware, Enameled and Japanned wares. Adzes, Axes and other Edge Tools, together with Cross Cut Saws, are in strong demand. This week brings advance on Axes. It is predicted that all goods nearest raw material will show higher prices before long, and that those jobbers who expected lower costs have changed their ideas on that point. Liberal filling in of Steel Hinges, both Strap and T, is a feature of orders. It is said that slight cutting has been done on Wire Nails and Barb Wire, but nothing serious. February business opens up well, and all goods are moving satisfactorily, especially seasonable items such as Fly Goods, Screen Doors, Lawn Mowers and Steel Goods. Prices on Ice Cream Freezers are said to be wholly unsatisfactory to local jobbing trade, the demoralization of prices being about same as last year. Dealers find it trying to pay advances on Refrigerators, perhaps not considering new cost to manufacturers on their raw material. Except on articles herein mentioned prices are being well maintained. The week has also brought its sales of new stocks. The Heavy Hardware jobbers are enjoying the same excellent prospects for February business. Buyers are placing orders freely for their requirements. Not the slightest break in iron and steel products can be discerned. The main difficulty appears to be to get orders filled by the mills on past contracts. Conditions have



been a little unfavorable for general business of late, but trade during January has been the most satisfactory some have had for many years. While generally it is a quiet month in many lines, apparently parties are compelled to buy because of low stocks. Some manufacturers anticipate a further advance, owing to the scarcity of raw material. Prices of all kinds of steel remain firm. No change has been noticed, and the sheet and plate market has again advanced, owing to the report of proposed consolidations of mills. Fire losses have been numerous in St. Louis the past ten days. The most disastrous conflagration occurred Sunday, February 4, extending over four business blocks. Loss about \$1,250,000. Several retail Hardware stores are in the affected district, but their loss is mainly due to water damage and temporary loss of trade.

### Notes on Prices.

**Wire Nails.**—No change has occurred in the Wire Nail market during the past week. Orders are being received somewhat in excess of expectations for the season, with indications of a larger demand in the future. The market is firm at manufacturers' quotations, which are as follows, f.o.b. Pittsburgh; terms, 30 days, 1 per cent. off in ten days:

To jobbers in carload lots.....	\$3.20
To " in less than carload lots.....	3.22½
To retailers in carload lots.....	3.35
To " in less than carload lots.....	3.45

**New York.**—Conditions in the local Wire Nail market do not vary from those ruling last week. Demand is satisfactory and manufacturers' prices are well adhered to. There is also less variation in the price for small lots from store. Quotations are as follows:

To retailers, carloads on dock.....	\$3.53
To " less than carloads on dock.....	3.64
Small lots from store.....	\$3.55 to 3.75

**Chicago, by Telegraph.**—The volume of business is large both from factory and from jobbers' stocks. Manufacturers are receiving heavy orders and jobbers are enjoying a very free movement. Prices are continued on the basis of \$3.53, Chicago, for single carload lots, and \$3.63 for small lots from stock. The American Steel & Wire Company have bought the Continental Wire Works at foreclosure sale and interesting developments are expected.

**St. Louis.**—Jobbers still mention a demand unusually large for the season. In view of this showing on the heels of the last advance the opening of the building season must bring a handsome increase of business. February 1 was to have seen an advanced freight rate from the East, but confirmation of the same has not yet been had. Quotations here made are on the basis of the old rate, being \$3.58, base, St. Louis, single carloads, with jobbers asking \$3.68, base, for small lots.

**Pittsburgh.**—The Wire Nail market is unchanged. The amount of business being placed is probably larger than is usual at this season of the year. The tone of the market is firm; the only concessions in prices being made are by a few jobbers who have Nails bought when prices were lower than they are now. The spring trade is about due and a much better demand is expected. We quote, f.o.b. Pittsburgh, terms 30 days, 1 per cent. off in ten days:

To jobbers in carload lots.....	\$3.20
To " in less than carload lots.....	3.22½
To retailers in carload lots.....	3.35
To " in less than carload lots.....	3.45

**Cut Nails.**—The advance of 5 cents per keg in the price of Cut Nails, made by the manufacturers on January 31, results in the following schedule of quotations f.o.b. Pittsburgh; terms 30 days, 1 per cent. off in ten days:

1000 kegs and over.....	\$2.50
Carload lots.....	2.55
To jobbers in less than carload lots.....	2.60
To retailers in " " " ".....	2.70

The market is referred to as firm at the above quotations.

**New York.**—During the past week the demand for Cut Nails has shown no decrease. Regular quotations on the basis of the recent 5 cents per keg advance are as follows:

To jobbers in carloads on dock.....	\$2.73
To " in less than carloads on dock.....	2.78
To retailers, " " " ".....	2.90
Small lots from store.....	2.75 to 2.90

There is considerable irregularity in the price of small lots from store and stocks in jobbers' hands afford opportunity to purchase small lots from store at a less price than on dock.

**Chicago, by Telegraph.**—Manufacturers are enjoying a better trade. The demand for Cut Nails shows a steady increase. The recent advance has not checked the growth of this trade. Carload lots are now quoted at \$2.73, Chicago, and small lots from stock at \$2.90.

**St. Louis.**—The Eastern advance of 5 cents has not yet been followed here. A good demand and activity of local mills exists at jobbers' base of \$2.90.

**Pittsburgh.**—There is an increasing demand for Cut Nails, some former consumers of Wire Nails having gone back to the use of Cut Nails on account of their lower price. We quote Cut Nails at \$2.50 in carload lots and \$2.65 in less than carload lots, f.o.b. Pittsburgh, freight to destination added. Terms 30 days net, or 1 per cent. off for cash in ten days from date of shipment.

**Barb Wire.**—Orders for Barb Wire are light, many buyers who are in the habit of purchasing a considerable quantity to supply their spring trade not anticipating their requirements. The market is firm at the following quotations for domestic trade, f.o.b. Pittsburgh, net cash, or 1 per cent. off in ten days:

To jobbers in carload lots, Painted.....	\$3.65
To " " " Galvanized.....	3.80
To " in less than carload lots, Painted.....	3.67½
To " " " Galvanized.....	3.82½
To retailers in carload lots, Painted.....	3.80
To " " " Galvanized.....	3.95
To " in less than carload lots, Painted.....	3.90
To " " " Galvanized.....	4.05

**Chicago, by Telegraph.**—Manufacturers report heavy orders for both Plain and Barb Wire. The movement is now on for the spring trade and business from this time is expected to be of large proportions. Jobbers also report an excellent demand. Quotations are as follows, Chicago delivery: Single cars of Plain Annealed Wire, \$3.38; Painted Barb Wire, \$3.98; Galvanized Barb Wire, \$4.13, with 10 cents additional for small lots from jobbers.

**St. Louis.**—No demand out of the ordinary is noted here. Prices here given do not bear talked of advance in freight rates. Painted in single carloads is quoted at \$4.03, with \$4.13 for small lots. Galvanized commands 15 cents advance on these prices.

**Pittsburgh.**—We are advised that the demand for Plain and Barb Wire is better in anticipation of the usual large spring demand. The tone of the market is strong. We quote Painted Barb Wire at \$3.65 in carload lots to jobbers, with an advance of 15 cents for Galvanized, all f.o.b. Pittsburgh; terms 30 days, or 1 per cent. off in ten days.

**Smooth Wire.**—The demand for Smooth Wire is on the increase and a fair volume of business is being done. The market is firm at the following quotations, f.o.b. Pittsburgh; terms 30 days, or 1 per cent. off in ten days:

To jobbers in carload lots.....	\$3.05
To " in less than carload lots.....	3.07½
To retailers in carload lots.....	3.20
To " in less than carload lots.....	3.30

**Pittsburgh.**—As noted last week, demand for Smooth Wire is increasing, buyers placing orders more liberally in view of expected activity when spring trade opens up. The market is strong and we quote: To jobbers in carload lots, \$3.05; to jobbers in less than carload lots, \$3.07½; to retailers in carload lots, \$3.20; to retailers in less than carload lots, \$3.30, all f.o.b. Pittsburgh. The charge for galvanizing is 50 cents on sizes from Nos. 6 to 14 inclusive; on Nos. 15 and 16, 85 cents, and on Nos. 17 and 18, \$1.10.

**Sargent & Co.**—Under date February 1 Sargent & Co., New Haven and New York, issue a condensed price-list and discount sheet, in which they give the list prices and discounts on all the goods of their manufacture and also discounts and changes in lists on the other goods represented in their catalogue of 1894. The trade are thus afforded in convenient form quotations on these important

'ines brought down to date. The pamphlet is a substantial one of 261 pages, printed in their usual clear and attractive style.

**Wire Rope.**—By the action of the manufacturers an advance has been made in the price of Galvanized Wire Rope, the discount on which is now 20 per cent. instead of 30 per cent., as heretofore, with an additional  $2\frac{1}{2}$  per cent. to dealers. The price on the Plain remains as before, 30 per cent., with an additional  $2\frac{1}{2}$  per cent. to dealers.

**Shot.**—An advance of 5 cents per 25-pound bag has been made by the manufacturers under date February 5. Present prices are as follows, terms net cash 30 days or 2 per cent. discount for cash in ten days, with the usual abatement in lots of 1 ton or over of 40 cents per 100 pounds:

Drop Shot, sizes smaller than B, per 25-pound bag.....	\$1.52
" " B and larger sizes, " 25- " ".....	1.77
Buck Shot, per 25-pound bag.....	1.77
Chilled Shot, " 25- " ".....	1.77
Dust " 25- " ".....	3.10

**Sash Weights.**—In sympathy with the Iron market Sash Weights are firm in price, and there is a tendency on the part of some foundries, especially in the West, which have been naming low prices, to advance their quotations somewhat. A concession in price in the New York market is to be noted in the fact that W. A. Ross & Bro., under date February 1, announce their price as \$27 per ton, f.o.b. or delivered within the usual cartage distance. They explain that this reduction is not due to any lower cost of manufacture, but to the slack demand usual at this time of the year. About \$25 per ton is referred to as representing the price in Philadelphia, Baltimore and other Eastern points. Considerably lower quotations continue to be made by Western foundries.

**Scythes.**—No further change has been made by the manufacturers of Scythes since the advance of 25 cents per dozen which went into effect January 1. The association prices are accordingly as follows, terms net 90 days, with 2 per cent. discount for cash in 30 days or 3 per cent. discount for cash in ten days, f.o.b. factory, with equalization freight allowance:

	Grass and Lawn.	Bush, Weed and Bramble.	Grain and Clover.
Cutting edge only polished.....	\$8.00	\$8.25	\$11.25
" " " and edge of back polished.....	8.10	8.35	11.50
" " " one web polished (full set).....	8.25	8.50	12.10
Cutting edge and both backs polished (no webs).....	8.40	8.65	12.10
Cutting edge, edge of back and one web polished.....	8.50	8.75	12.90
Cutting edge, both backs and one web polished.....	8.75	9.00	13.45
Cutting edge, both backs and two webs polished.....	9.25	....	....
Cutting edge, both backs and two webs and set polished.....	9.75	....	....

The above prices are those established by the manufacturers to the retail trade, there being rebates to the houses on the two classes of jobbers' lists respectively designated A and B. The trade is referred to by the manufacturers as not especially active, and there is a good deal of complaint on the part of merchants, both wholesale and retail, in view of what they regard as the unreasonably high prices. There is also a good deal of dissatisfaction on the part of the jobbers with the differential established by the association between wholesale and retail buyers. Another influence affecting the demand is the fact that a good many Scythes were carried over from last season.

**Egg Openers.**—W. R. Hartigan, Collinsville, Conn., is manufacturing Egg Openers, which are sold at the following prices:

Nickel Plated, per dozen.....	\$2.00
Silver Plated, ".....	4.00

**Paris Green.**—There is not much activity in the Paris Green market, orders coming in slowly to manufacturers. The stocks carried over by jobbers from last season probably have much to do with the slowness in purchasing.

Prices vary from  $12\frac{1}{2}$  to 15 cents as a base, but the former is readily obtainable. Quotations are as follows:

	Cents.
In Arsenic kegs or casks.....	12 $\frac{1}{2}$
" kegs, 100 to 175 pounds.....	13
" kits, 14, 28, 56 ".....	14
" paper boxes, 2 to 5 pounds.....	14
" " " 1 pound.....	14 $\frac{1}{2}$
" " " $\frac{1}{2}$ ".....	15 $\frac{1}{2}$
" " " $\frac{1}{4}$ ".....	16 $\frac{1}{2}$

**Glass.**—Quotations contained in a circular letter sent out by the American Window Glass Company announcing the recent change in prices are more full than those given by us last week, and are as follows for carload lots from factory:

	Per cent.
Single strength:	
First Bracket.....	85 and 25
Second and Third Brackets.....	89
All above.....	90 and 5

	Per cent.
Double strength:	
First five Brackets.....	89
60-inch Bracket.....	90
70 to 100 inch Brackets, inclusive.....	90 and 10 and 5
All above.....	90 and 20

These quotations are f.o.b. factory for the East. A commission of  $2\frac{1}{2}$  per cent. is allowed jobbers for selling. These prices in a general way make an advance on sizes in demand and reduce sizes which are irregular and are ordered but sparingly for consumption. There is as yet no evidence that the tactics of the American Company have resulted in closing outside factories or decreasing the number of vacant places in their own plants. It is understood, on the other hand, that workmen are going from the American Company's plants to take places in new independent factories which are starting. The Eastern division of the jobbers' association has fixed the extreme price for Window Glass east of the Alleghenies at 85 and 10 per cent. discount for the first bracket and 85 and 20 per cent. discount for all other brackets, of either Single or Double Strength, for less than carloads from store.

**Leads.**—*White Lead.*—The market for White Lead in Oil is steady and prices unchanged. The recent advance in Linseed Oil renders the market very firm, with a possible advance in the price of Lead in Oil. Quotations are as follows: In lots of less than 500 pounds, 7 cents; in lots of 500 pounds and over,  $6\frac{1}{2}$  cents per pound.

**Oils.**—*Linseed Oil.*—The advance in the price of Linseed Oil on January 29 has had the effect of increasing purchases to a limited extent. The opinion prevails in some minds that present prices will be sustained, if not advanced, as Seed continues to advance. Demand is confined to the necessities of the near future. City Raw is quoted at 56 cents in lots of five barrels or more and at 57 cents in lots of less than five barrels. Outside brands are 2 cents per gallon less.

**Spirits Turpentine.**—Early in the present week Turpentine reached  $56\frac{1}{2}$  cents for Southern and  $57\frac{1}{2}$  for machine made barrels. The advance was due to large foreign shipments from Southern points. The local market is now represented by the quotation of 56 cents per gallon for Southern and  $56\frac{1}{2}$  cents for machine made barrels, at which figures the market is firm but dull.

THE GEM NAIL CLIPPER, manufactured by H. C. Cook & Co., Ansonia, Conn., we are advised, is meeting with a large sale both here and abroad. This device is sold at retail for 25 cents, and, it is stated, is made from high grade tool steel neatly finished in nickel, is less than 2 inches in length, and has no sharp corners to wear the pocket. The jaws are hardened and ground accurately, and with proper care one will last a life time. The Clippers are prepared for the Hardware trade one dozen on an attractive show card. The foreign trade of this concern is handled by Smith & Hemenway Company, 296 Broadway, New York.

JOHN B. FOLEY & Co. are preparing to open a general Hardware store at 362 South Salina street, Syracuse, N. Y. They will carry Builders' Hardware, Tools, House Furnishings, Paints, Glass, &c. They may be addressed temporarily at 508 Kirk Building.



## Hardware Organizations.

### Iowa Retail Hardware Association.

The following circular has been issued relating to the matter of reduced fare to the annual meeting at Des Moines, February 14-16. The circular explains just what to do in order to secure the one and a third rate:

The railroad companies have granted us a one and one-third fare to the convention at Des Moines, February 14, 15 and 16, on the certificate plan. Purchase from your agent one full fare one way ticket to Des Moines (not a round trip), get his certificate receipt for the same. If your agent does not have through tickets to Des Moines buy a one-way ticket to the junction point and from there to Des Moines, taking a certificate in both cases. Present these certificates to the secretary, Mrs. Kupper, immediately upon your arrival at Des Moines, whose signature together with that of the joint agent of the railroad companies, who will be in attendance, will entitle you to a one-third return fare.

You must follow these instructions closely or you cannot take advantage of the reduced rate.

### Minnesota Retail Hardware Association.

The following is the official programme of the annual convention of the Minnesota Retail Hardware Association, to be held at Duluth, February 14, 15 and 16 next:

#### First Day.

- 11 a.m.—Meeting of Executive Committee, Convention Hall.
- 1 p.m.—Payment of dues.
- 2 p.m.—Address of welcome, by the Mayor.  
Reply, by President O'Brien.  
Secretary's report.  
Treasurer's report.  
Election of officers.  
Announcement of committees: 1, Transportation; 2, Resolutions; 3, Grievances; 4, Receptions; 5, Auditing; 6, Reports.  
Remarks by ex-President Ladner.  
Papers by members.  
Adjournment.
- 9 p.m.—Entertainment by Twin City and Duluth jobbers.

#### Second Day.

- 9 a.m.—Executive session.  
Reports of committees.  
Payment of dues.  
Talk on Insurance, President Hatch and other members.  
General discussion.  
Adjournment.
- 2 p.m.—Open meeting.  
Reception and remarks by jobbers and manufacturers.  
Paper by E. A. Moye.  
Appointment of committees to confer and correspond with Iowa and Illinois concerning union with Northwestern Association.  
New business.  
Adjournment.

#### Third Day.

Visiting jobbing houses and points of interest.

### New England Hardware Dealers' Association.

The annual meeting of the New England Hardware Dealers' Association will be held at the United States Hotel, Boston, on Wednesday, February 14. The business meeting will take place immediately after the usual dinner, and officers will be chosen for the ensuing year.

The principal guest of the association will be William Chamberlin of the Emery-Waterhouse Company, Portland, Maine, who will speak on the subject of "Competition in Trade." Every member is also invited to speak on this topic, as well as that of "The Advance in Prices and Its Effect on the Hardware Trade."

The following committee has been appointed to nominate officers for the next term: Samuel H. Thompson, Lowell; Hiram G. Janvrin, Boston, and Anthony S. Morss, Boston. The Entertainment Committee in charge of the evening are Geo. J. Mulhall, William H. Warren and Henry M. Sanders, all of Boston.

During the evening Robert L. Van Buskirk and Leslie F. Mansfield will render some entertaining music.

### Chicago Retail Hardware Dealers' Association.

The Chicago Retail Hardware Dealers' Association have elected the following officers for 1900: President, D. McLaughlin, 1353 Ogden avenue; vice-president, W. J. Krueger, 625 West Twelfth street; secretary, G. R. Lott, 954 West Lake street; financial secretary, John Hora, 661 Milwaukee avenue; treasurer, J. L. Smith, 752 West North avenue; Buying Committee, George A. Englehardt, chairman, 726 Milwaukee avenue; Chas. H. Munzel, 468 North avenue, and Leo Krueger, 139 to 141 Milwaukee avenue.

The members of this association who intend to go to Peoria to attend the annual convention of the State association will leave Chicago on the 26th inst. at 5.45 via the Chicago, Rock Island & Pacific Railroad. A special rate has been secured of \$5.60 for the round trip from Chicago.

The association purchased Refrigerators at the last meeting and will probably buy Blue Flame Oil Stoves and Ovens at a special meeting to be held on the 16th inst. They hold their meetings in the Schiller Building, 103 Randolph street, Chicago.

### Ohio Hardware Association.

The programme for the annual meeting of the Ohio Hardware Association at Cleveland, February 28 and March 1 next, has just been completed and is as follows:

#### Wednesday, February 28.

Executive Committee meeting, 10.30 a.m.  
Convention called to order at 2 p.m.  
Roll call of members.  
Reading of minutes.  
President's address.  
Report of the secretary.  
Recess for payment of dues.  
Report of Committee on New Constitution.  
Appointment of committees.  
Half-hour class and experience meeting.  
Adjournment.

#### Thursday, March 1.

##### MORNING SESSION.

Words of welcome to new members, by an old member.  
Paper on "Relation of Expense to Profits."  
Paper on "Stock Taking and Dead Stock."  
Opening of question box.  
Discussion of questions.

##### AFTERNOON SESSION.

Question box continued.  
Reports of committees.  
Unfinished business.  
Election of officers.  
Selection of place for 1901 meeting.  
Adjournment.

On Wednesday evening, February 28, will occur a social reception in which an opportunity will be afforded to members to renew acquaintance and meet new members.

The regular annual banquet will take place on Thursday evening.

J. F. Baker, Dayton, Ohio, the energetic secretary of the association, advises us that the interest of the merchants in the State in the approaching convention greatly surpasses any former gathering, and if indications count for anything the assemblage of Hardwaremen at Cleveland will far exceed former records. The trade are evidently infected with the spirit of organization and the necessity for a united front to combat evils which have grown oppressive.

A circular giving definite information as to headquarters, programme, railroad and hotel rates, &c., will soon be mailed to every Hardware dealer in the State.

### Missouri Retail Hardware and Stove Dealers' Association.

The retail Stove and Hardware merchants of St. Louis are proceeding energetically with plans for entertaining the Missouri Retail Hardware and Stove Dealers' Association, who will meet in that city for the annual

convention, February 20. Visiting merchants are assured that their stay in St. Louis will be made pleasant.

#### North Dakota Retail Hardware Association.

The following is the programme for the third annual meeting of the North Dakota Retail Hardware Association, to be held in Loyal Knight Hall, Fargo, on February 21 and 22:

*Wednesday, February 21.*

10.30 a.m.—Meeting of Executive Committee.  
2 p.m.—Address of welcome, by Mayor Johnson.  
Response, by Vice-President Allen of Jamestown.  
President's address.  
Reports of secretary and treasurer.  
Appointment of committees: Press, Transportation, Nominations, Auditing, Resolutions.  
Question box.  
Enrolling of new members and payment of annual dues.

*Thursday, February 22.*

9 a.m.—Report of Nominating Committee.  
Election of officers.  
Paper, "Some Wrongs which Need Righting," H. N. Joy, Hamilton.  
Paper, "The Effect of Department Stores on the Hardware Trade," H. S. Diesem, La Moure.  
Paper, "Some Observations About Expansion," G. W. Wolbert, Casselton.  
Paper, "The Country Retailer's Superior Advantages in Trade," W. H. Pinkerton, Lakota.  
Paper, "Competition," H. F. Strehlow, Casselton.  
2 p.m.—For members only.—Reports of committees.  
Question box and discussion.  
Good of the association.

#### Souvenir Hardware Album.

**W**ILCOX MFG. COMPANY, Aurora, Ill., have issued to their customers and friends a unique album entitled "Familiar Faces in the Hardware Trade." It contains the portraits of many prominent wholesale Hardware merchants which are reproduced in half-tone from photographs which the president of the company has been for years collecting. In a corner of the title page is this quotation:

As one who cons at evening o'er an album all alone,  
And muses of the faces of the friends that he has known,  
So I turn the leaves of fancy till in shadowy design  
I find the smiling features of these customers of mine.

After the title page are two pages of index, followed by the portraits themselves finely printed in groups of two or three on one side of each leaf. Underneath the pictures are the names of the individuals, together with the name of the house they are identified with. There are 90 leaves in all, each 11 x 8 inches, bound in heavy cloth covers. The album is very creditably gotten up, is suitable for desk or library as there is nothing of a commercial nature in it, and it will doubtless be prized by all who receive it. Such a collection of portraits is a pleasant recognition not only of men prominent in business, but also of the importance of the personal element in trade notwithstanding certain tendencies in prevailing methods to eliminate it.

#### H. D. Smith & Co.

**H.**D. SMITH & CO., Plantsville, Conn., have been re-organized and hereafter will be conducted under an entirely new management. The business was established in 1850, the concern's product being largely Carriage Hardware and Drop Forgings. The control of the property has recently come into the possession of Lucius V. Walkley, formerly of Pultz & Walkley Company, Plantsville, Conn., and now director of the Union Bag & Paper Company, who control the paper bag business, and to whom the Pultz & Walkley Company sold out a year or so ago.

The new officers are: Webster R. Walkley, president; Winfield D. Walkley, vice-president (respectively brother and nephew of L. V. Walkley); L. V. Walkley, treasurer,

and Edwin P. Hotchkiss, secretary, who, with John Riegel and W. S. Ward, constitute the Board of Directors. W. R. Walkley has resigned his position as manager of the New York branch of the Peck, Stow & Wilcox Company, in order to give his entire time to the direction of H. D. Smith & Co., and will hereafter reside in Plantsville. These gentlemen, so widely and favorably known, will have the best wishes of the trade for their success in this new departure.

#### Trade Items.

**O**WING to the increasing demand for their goods in the East the Wilcox Mfg. Company, Aurora, Ill., have found it necessary to open an office at 168 Church street, New York, where a complete stock of their manufactures will be carried. Edgar Zabriskie is in charge as manager.

**U**NDER DATE of February 1, 1900, the firm formerly known as C. F. Evans Steel & Iron Company, Cincinnati, Ohio, were incorporated as the C. F. Evans Steel & Iron Company, who will continue the business of jobbers and dealers in Steel and Iron Products at the old stand, 22 West Second street. Among the principal firms represented are the American Steel & Wire Company, J. C. Pearson Company, Hermann Bros., Franz Krein Chain Company, Wheeling Hinge Company, De Haven Mfg. Company, Jas. H. Baker Mfg. Company. The company report having enjoyed a large business year during 1899 and look for an increase during 1900.

**GEO. H. BISHOP** of Geo. H. Bishop & Co., Saw manufacturers, Lawrenceburg, Ind., has just left on an extended business trip for his firm to the Pacific Coast, via Butte, Seattle, Portland and San Francisco, returning by way of Salt Lake City. The company enjoy a large trade West and considerable in the Sandwich Islands.

**FRANK F. WESTON** has organized the Seymour Mfg. Company, Elmira, N. Y., of which he is treasurer, and has purchased the Bicycle business of the Eclipse Bicycle Company of that city, and will manufacture the Eclipse and Waldorf Cycles. Mr. Weston, who was formerly in the Hardware business, advises us that his company will make a special effort to cater to the retail and jobbing Hardware trade.

**THE KINNEAR & GAGER COMPANY**, Columbus, Ohio, have sold to the Kinnear Mfg. Company the patents, patterns, plans, machinery and material pertaining to their Steel Rolling Shutter, Door and Partition department, also good will. The announcement of the sale bears date January 1. All unfilled orders and contracts for Rolling Shutters, Steel Curtains and Partitions have been transferred to the Kinnear Mfg. Company. The Kinnear & Gager Company will continue the manufacture of Kinnear's Patent Ceilings, Siding, Wainscoting, &c., including Paneled Fire Shutters and Doors.

**JOHN HASSALL**, Clay and Oakland streets, Brooklyn, N. Y., has a souvenir Nail made of about No. 8 coppered wire, with a medallion head of Admiral Dewey, showing the capabilities of the machine made by Mr. Hassall, who was a pioneer in the manufacture and use of wire nail machinery in this country. He also manufactures Escutcheon Pins, Wire Nails, Rivets, Hinges, Catches, Trimmings for small boxes, &c.

**THE HARRINGTON & RICHARDSON ARMS COMPANY**, Worcester, Mass., have prepared a metal show card, which they are sending, without charge, to Hardware and Sporting Goods dealers, upon receipt of request for the same. The card is handsomely gotten up, representing light wood in natural color surrounded by a frame. Embossed in colors is "H. & R. Arms Company's Revolvers," and the representation of a Revolver.

**BALTIMORE SHOVEL & MFG. COMPANY**, Baltimore, Md., advise us that by the 20th inst. they will be prepared to furnish socket pattern Shovels of standard grades and sizes. This company have lately been incorporated with a capital stock of \$50,000. Frank Guildener is president and George L. Mowen secretary and manager.

**THE PLANT** of the Hopkins & Allen Mfg. Company, Norwich, Conn., was entirely destroyed by fire on the 4th inst. The loss is estimated at about \$500,000. About \$150,000 insurance was carried. The company employed 350 hands and their yearly pay-roll amounted to \$150,000.

**ATTENTION** is called to the advertisement in this issue of the Brohard Company relative to Brohard Door Holder. This Door Holder is said to combine simplicity with perfect action and to be highly recommended by those who have used it. It is said there are over 3,000,000 of the Holders in use in the United States.



## Wisconsin Retail Hardware Association.

**T**HE opening session of the fourth annual convention of the Wisconsin Retail Hardware Association, at Milwaukee, was called to order at 2 o'clock this (Wednesday) afternoon by President James Montgomery. The delegates are assembled at the Republican House.

A very large representation of the trade was on hand, and former conventions will probably be surpassed in attendance of members and interest of the proceedings.

### Hardware Exhibits.

An unusually large number of Hardware displays are made at the headquarters of the association, indicating the great and increasing interest of manufacturers and jobbers in gatherings of this character. Hibbard, Spencer, Bartlett & Co. of Chicago have an especially notable exhibit.

### Traveling Salesmen.

Traveling salesmen are also in evidence in large numbers and are taking a deeper interest in the convention than heretofore.

### List of Members.

Following is a list of the members of the Wisconsin Association:

Argyl.—H. J. Hendricksen.  
Arlington.—F. A. McKillop.  
Antigo.—Hessel & Lykum, J. C. Lewis & Co.  
Appleton.—A. Galpin & Sons, J. J. Hauert, Petersen & Koss, Schlafer Hardware Company, L. Petersen Hardware Company.  
Adell.—Anton Seifert.  
Algoma.—C. B. Tift.  
Ashland.—R. W. French & Son.  
Augusta.—A. G. Cox & Co.  
Baraboo.—Mariott Bros., Lee, Pratt & English.  
Beaver Dam.—Beichl & Wollenberg, F. Rassmun.  
Belleville.—J. L. Gassette.  
Beloit.—Watson & Andree, Fredrick Hardware Company, G. H. Rosenberg.  
Berlin.—Thomas & Cunningham, C. A. Peck.  
Blanchardville.—Blanchard Bros.  
Black Earth.—Fessenfeldt & Hughes.  
Black River Falls.—P. L. Moe & Co.  
Boscobel.—Ruka Bros.  
Brillion.—Koch & Rank.  
Broadhead.—R. C. Murdoch, Broderick & Marshall.  
Birnhamwood.—L. W. Boettscher.  
Burlington.—L. N. Larson, C. B. Wagner.  
Cameron.—Chris. Sherm.  
Cashton.—P. J. Hanson.  
Campbellsport.—Wm. Wedde, Jr.  
Cedarburg.—C. W. Lehman & Bro.  
Cambridge.—Texley & Bagley.  
Cambria.—O. J. Williams.  
Camp Douglass.—C. H. Hoton.  
Centralia.—Centralia Hardware Company.  
Chilton.—Andrew Nohl, Chas. Kroessing.  
Chippewa Falls.—Hoenig Bros. & Co.  
Clintonville.—H. W. Winter & Son.  
Colby.—A. F. Krepsky, Adam Kuentz.  
Columbus.—Julius Kroeger, G. T. Millar, Peiper & Son.  
Cuba City.—W. H. Pasco.  
Cumberland.—A. H. Kellerman.  
Depere.—A. D. Race, G. G. Pratch.  
Eau Claire.—H. F. Schlegelmilch.  
Edgar.—Alf. W. Puchner.  
Edgerton.—J. D. Hain Estate, Ole Ellingson & Co.  
Eagle River.—C. P. Mitchell.  
Elkhart Lake.—A. Heins.  
Ellsworth.—Foss & Armstrong Hardware Company.  
Evansville.—F. A. Baker & Co.  
Eleva.—F. J. Hartmann.  
Fennimore.—Roach & Perkins.  
Fond du Lac.—Geo. P. Dana, John Hughes, Roblee & Thompson, J. F. Wegener & Co., Wilkie & Son, John Hagensen.  
Fort Atkinson.—Hager Bros., Ole Widdale.  
Fox Lake.—E. Sanborn.  
Galesville.—Frank Kellman.  
Gratiot.—Collins & Son.  
Green Bay.—W. D. Cook, Findlesen Bros., A. Kimball.  
Hayward.—Hall, Linden & Co.

Horicon.—Louis Deltz.  
Hillsboro.—Robt. Hammer.  
Hollandale.—J. A. Johnson, Jno. A. Dunstan.  
Hudson.—A. Johnson & Co., Oliver Bros.  
Janesville.—A. H. Sheldon, H. L. McNamara.  
Jefferson.—C. F. Bullwinkle.  
Juda.—G. B. Lahr & Co.  
Juneau.—Geo. W. Adams.  
Johnson's Creek.—H. F. Prenzlou.  
Kaukauna.—Peter Fellar, Haas & Merbach.  
Kenosha.—C. A. Dewey, Redeker & English.  
Kell.—Jno. M. Duecker & Co., Greve Bros.  
La Crosse.—Fred'k. Ditman, Adam Kroner.  
La Valle.—Eider Bros.  
Lake Mills.—Geo. H. Bruns, Saecker & Shroder.  
Lowell.—Jno. Sturner, Jr.  
Loyal.—H. S. Mulvey.  
Madison.—D. W. Rainsey, Krehl & Beck, Sumner & Morris, A. G. Kroncke.  
Manitowoc.—Wm. Raathsack Sons, Emil Tietgen, Wrencke & Schmidt, Worrel & Zeman, J. Walschlager & Sons, Kerscher Bros.  
Marathon.—J. P. Lehman.  
Marinette.—H. P. Chase & Co., H. B. Simcox & Co., Watson Bros.  
Markesan.—R. J. Evans, C. F. Hansen.  
Marshall.—H. C. Glasgow.  
Marshfield.—Wm. Noll Hardware Company, C. S. Sherin, Marshfield Hardware Company.  
Marion.—W. R. Binkelman.  
Mayville.—Aug. Thelke, Jr.  
Mazomanie.—L. W. Dukerschein.  
Menasha.—G. A. Loescher, Trilling Hardware Company.  
Menominee, Mich.—Menominee Hardware Company.  
Menominee, Wis.—Carroll Lucas.  
Medford.—Mrs. S. M. Shultz.  
Merrill.—H. R. Fehland & Co., Weiss Hardware Company, Wenzel & Duteau.  
Mineral Point.—Sam'l Jenkins.  
Mondovi.—H. J. Canar & Co., Wm. Helwig.  
Monroe.—Fred Lanz, Streiff & Lewis.  
Mukwonago.—Goodman and Schultz.  
Milwaukee.—Otto Gallum, W. H. Munn & Co., Chas. Stadt, E. H. Daniels & Co., Illian Bros., Malschalk & Weiss, F. C. Burr & Sons, J. Droegkamp & Sons, Simon Fink, Jacob Kornely, H. Salentine & Co., Anton Kusik, Peter Paulus Hardware Company, Fred Herenbrook, Chas. Schossow, Wm. Strauss, Aug. Schupinsky, J. G. Trentlage, Vose & Koenig, J. S. Druse, Wm. Lindsay, H. M. Krogman, Stollenberk Bros., F. Uecke & Son.  
Neenah.—Stroebe & Baumgarten, W. Krueger & Co.  
Neosho.—Dehne Bros.  
New Glarus.—J. M. Schmoldt.  
New Holstein.—Arps & Bros., F. W. Matthaeus.  
New London.—E. H. Ramm, Oestrich & Lyons Hardware Company.  
Oconomowoc.—Smith & Meadows, H. Lorleburg Company.  
Oconto.—E. A. Lemeux.  
Omro.—Day-Lindsay Hardware Company, C. B. Root & Co.  
Osseo.—Smith Bros.  
Oregon.—H. H. Marvin.  
Orfordville.—M. O. Rhime.  
Oshkosh.—Hay Hardware Company, Krippene Hardware Company, F. Leach Hardware Company, F. Wille & Son, Menzel & Kempf.  
Pine River.—H. E. Frisbie & Sons.  
Pleasant Prairie.—F. S. Symonds.  
Peshtigo.—F. E. McGraw.  
Pewaukee.—S. E. McDowell.  
Pittsville.—L. L. Doud.  
Plainfield.—F. B. Rawson, L. D. Stillwell & Son.  
Platteville.—F. W. Marcussen, J. E. Fawcette Hardware Company.  
Pardeeville.—W. H. Cobb.  
Plymouth.—Gaffron & Trowbridge, O. F. Leuder, J. B. Weinsick.  
Portage.—J. E. Wells & Co.  
Racine.—Anderson & Fritz, Hoernal Hardware Company, Caster Jorgensen, Mohr & Jones Hardware Company, Murphy and Kersten, Frank Bauman, Dixon, Malone & Co., H. Raymond.  
Randolph.—W. Pritchard.  
Reedsburg.—Siefert Bros.  
Rib Lake.—C. H. Resimius.  
Rhinelander.—Clark & Lemon.  
Richland Centre.—D. G. James.  
Ripon.—Barlow & Seelig, J. M. Jenkinson.

Seymour.—Friend & Drueger.  
 Sharon.—Fleld & Walcott.  
 Sheboygan Falls.—Estate of J. F. Haurenstein, E. J. Schenkelberger.  
 Sheboygan.—Geele Hardware Company, H. H. Miller, Jos. Trilling, W. H. Spranger, Jno. J. Koepsell.  
 Spring Valley.—Foss, Armstrong & Johns.  
 South Milwaukee.—Byron E. Walter.  
 South Wayne.—Jasper Dexter.  
 Stevens Point.—Gross & Jacobs, C. Krembs & Bro.  
 Spring Green.—Sherwood Bros., Jos. Linns.  
 Sparta.—M. F. Howells, C. E. Simpson.  
 Stockbridge.—W. B. Miller.  
 Stoughton.—A. E. Anderson.  
 Sun Prairie.—J. D. Hayden, H. G. Miller, Dott & Peshak.  
 Sturgeon Bay.—J. S. Hay Estate, Scofield & Co.  
 Tomahawk.—Evensen Bros.  
 Two Rivers.—Robert Suettinger.  
 Viroqua.—Martin Kuebler.  
 Washburn.—E. Bergman, B. Undgrot.  
 Waterloo.—Chas. Janisch, H. H. Porter.  
 Watertown.—D. & F. Kusel, Wm. Webber & Co.  
 Waukesha.—Sam'l A. Perkins, C. A. Hartel.  
 Waupaca.—H. W. Williams & Co., E. C. Williams.  
 Waupun.—Bryce & Ferguson, Howard Bros.  
 West Depere.—W. M. Workman & Co.  
 Westfield.—Hamilton Bros., Wernecke & Blaeder.  
 Wausau.—James Montgomery, G. Kurth & Sons, A. Weichman & Sons.  
 West Superior.—Superior Hardware Company.  
 West Salem.—J. H. Gillfillan & Bowles.  
 Weyauwega.—Uttermark Bros.  
 Whitewater.—F. M. and M. M. Finch, T. H. Goodhue.  
 Wittenberg.—Rudolph Puchner.  
 Wrightstown.—Rathier & Schauble.  
 Wonewoc.—Holmes, Potter & Holmes, H. L. Talg.  
 Wautoma.—F. F. Weshner.

Mayor Rose of Milwaukee welcomed the delegates to the city in a graceful speech, to which President Montgomery responded. Mr. Montgomery then made the following presidential address:

#### Mr. Montgomery's Address.

In greeting you upon this the opening session of our fourth annual meeting, it seems fitting that we should pause at this point of vantage, and look backward as well as forward, and recall some of the history we have made, and be better prepared for the duties and opportunities which face us in the future.

Four years ago, in a small room in the Republican House in this city, a little group of earnest Hardwaremen met to consider the feasibility of the organization of a State Retail Hardware Association.

They came from their respective homes with some trepidation, ignorant of the opposition or the obstacles they would meet; but with one idea that there were certain wrongs which should be righted, and that could only be cured by organization. The expressions were very emphatic, and the appeals for help so urgent that the little body gathered there that day felt justified in taking the preliminary steps for such an association.

#### GROWTH OF THE ASSOCIATION.

From that small beginning we have grown until today we number nearly 300 active Hardware concerns, located in over 150 towns throughout the State.

As for its work, it has brought in closer touch our friends from whom we buy, it has brought us face to face, and I trust strengthened the confidences until they as well as we have learned that our interests are mutual; and certain practices that were in vogue have been discontinued to the benefit of each.

#### GIVE AND TAKE.

And we should ever stand as ready to take a suggestion as to give one; and an organization reared upon any other foundation stone than equal and exact justice to all is unworthy a name and a life. It has called Hardwaremen from distant parts of the State together, until the dealers from the towns on the north lake coast are introduced to their brother dealers of the prairie cities of the South; and many a dealer has gone back to his daily grind with fresh impulses and stronger resolves to make a harder battle after our sessions of intercourse; and the friendships formed at these meetings will be as last-

ing as life, and they can only be likened to the gathering of the ancient Jews at Jerusalem for the feast of the Passover.

#### FRIENDLY RIVALRY.

It has done even more than this, it has brought competitors from the same town together, and they have learned to know each other, and instead of classing each other as enemies they have been brought to see that each has his virtues; and they have returned to their homes with a firm determination to bury deep their past prejudices and work more in harmony; and where suspicion or jealousy reigned friendly rivalry now exists; and where prices were slaughtered, uniformity in marking is now practiced.

And I am convinced, after 20 years' experience, that more profit will accrue to the dealer working along these lines than can ever be hoped for in trying to legislate the department store out of existence.

I might mention many other features of profit and privilege that have accrued to the members of this association, but have I not mentioned enough to show that the high aims of the originators have been realized?

#### THE TWENTIETH CENTURY.

Now as we scan the future at the sunrise of the new century let us take for our motto "Higher." You have opportunities that your fathers never had—the State of Wisconsin never offered so many inducements to the live business man as to-day; its mines of Iron and Copper, its forests and prairies, are the wonder of the world; did it ever occur to you that we raise in Wisconsin one-half as much wheat as the whole of South America, and as much as Australia? In the midst of this vast and productive section a kind Providence has cast our lots.

The prices you are now getting for your staples in comparison with those of a year ago are simply marvelous; and the year of grace A. D. 1899 will go down in Hardware history as the banner year for rapid advances; and we should carefully consider their import; and especially should we ask what the effect is to be upon our own business affairs. All will be willing to concede that the effect so far has been beneficial, but we should all heed that old adage that "what goes up may probably come down," and the turning point is the North Pole of every dealer.

#### LOYALTY TO THE ASSOCIATION.

I wish I had the gift of logic and eloquence to make you feel as I do the possibilities of our organization; that I could enthrone you to feel that the future is bristling with opportunities for the improvement and betterment of our condition as individual dealers throughout the State, and which can only be effected by loyalty to this organization. We change customs of trade to the joy of the seller as well as ourselves; we can throw safeguards around the buyer and seller; we can throttle dishonest and dishonorable competition; we can raise the standard of commercial honor; we can make our daily business life more peaceful than ever before; to accomplish this, it is essential, yea, it is absolutely necessary that we act as a unit; we must have one aim and purpose; the majority vote should be unanimous; each must be willing to assume his share of the responsibility; each must be willing to bow to the will of the majority; and the voice of this convention expressed on the floor, or through its Executive Committee, must never be embarrassed by act or word of the individual member, "United we Stand, divided we fall."

#### KNIGHTS OF THE GRIP.

I would be unworthy to speak as your representative were I not to mention in this public manner our grateful acknowledgments to the Knights of the Grip, who go up and down the State so regularly, and who have so diligently and persistently presented the merits of this association to their various customers.

I have requested our secretary to keep a record of their names and their work.



## NORTHWESTERN RETAIL HARDWARE ASSOCIATION.

Our connection with the Northwestern Association has given us strength, and much good will yet come along lines that are of vital interest to this association; and I hope to see the day when all of our State organizations will be united in a National Retail Hardware Association.

As to suggestions for this special meeting there will be some made from time to time, some originating with the Executive Board and some from the floor of this convention.

Our secretary will give you in detail the work of the year, showing our splendid growth numerically and financially.

Our ranks this year have been unbroken by death, and as far as I am able to learn, not one word of criticism has been uttered against your Executive Board, for which we should be thankful to Providence for the first and to an indulgent membership for the second blessing.

## RAISING THE STANDARD.

Let me now, as your retiring president (because it should be the unwritten law of this association that no president should succeed himself), say that you should plan for this association, work for it, talk for it; and if needs be, fight for it; lift it higher year by year, higher in purpose, higher in principle; then may it be said, as it should be in all the marts of trade, that there are no better credentials for the dealers of this State than that they are members of the Wisconsin Retail Hardware Association.

Remarks by Vice-President A. H. Sheldon, Janesville, and ex-President John Hughes, Fond du Lac, followed, after which committees were appointed on transportation, resolutions, grievances, reception, auditing and reports.

The report of the secretary, C. A. Peck, Berlin, was as follows:

**Secretary Peck's Report**

In presenting my third annual report to our fourth meeting, I am glad that I can present so favorable a one, which is not so much due to your secretary as to the hearty co-operation of the officary and membership.

The past year has been as good as any that have preceded it, and better than some of them. I would take this opportunity to thank the membership for their forbearance and co-operation during the entire year. If there has been any fault-finding it has not come to my ears.

To President Montgomery do I feel especially indebted for his able and hearty co-operation. At the adjournment a year ago I went as directed to St. Paul to attend the meeting of the Minnesota State Association, and there met a large representative body of dealers who seemed to be as much, or more, in earnest than we are in Wisconsin.

## THE NORTHWESTERN ASSOCIATION

met at the Merchant's Hotel on Wednesday evening of the week in which the State Association met, and in looking over the work for the year past, were satisfied that we had no reason to complain. The meeting was harmonious, and it was decided to pursue the same lines for the year to come that we had during the past year, they being the best that had as yet been devised to accomplish our ends.

Within the last few weeks a move has been made in Iowa toward forming a

## NATIONAL ASSOCIATION

which shall be wide enough in its scope to take in every retail association formed. This matter will come before you at the present session for your action and it seems to me to be desirable that such a move may be successful. At St. Paul James Montgomery was put in to represent the Wisconsin Association in place of myself, which was in harmony with rules previously adopted.

## A GRATIFYING CONDITION.

Our membership is 271, a net increase of 72 during the year, as we have received 85 new members and dropped eight for non-payment of dues, two as jobbers, and three have sold out. There are now only 22 members who are in arrears, and when you notice some States report unpaid dues up into the hundreds of dollars our \$44 looks very encouraging. It seems as though our members were in earnest.

Our record reads, on members, 1897, 40; 1899, 199; 1900, 271.

Our financial exhibit will read about like this: 1897, 00; 1900 \$440, and no debts. Surely we should feel encouraged.

## COMPLAINTS.

To some it may seem we have not accomplished much, but to one who sees all the complaints and their outcome I can say the report is as good along that line as on either the above. There have been more complaints this year, but with a single exception they have all been satisfactorily settled in a way that seems to me fair and equitable.

## WORK OF THE TRAVELING MEN.

There is one matter I would call especial attention to, and that is the interest traveling men have taken in our success, at least some of them. Several have sent in 1, 2, 3, or 5 applications, but to J. C. Bump, the delicate 250-pound Stove man whom most of you know, belongs the banner, as he has sent in 46 names and \$92 in dues. He stopped a while ago to give me a chance to write up my books, and took his wife and went to Niagara Falls. I have not received any applications from New York State yet, but expect to, every mail. I wish such Bumps were as thick as were the boils on Job.

To every traveler who has talked up our association, whether successful or not, I move we extend a vote of thanks. I still believe they can do us more good (or harm) than any other class, if they are so disposed.

## LABORS OF THE SECRETARY.

The work of your secretary has been in part the compiling and mailing of 800 copies of our last meeting in pamphlet form, 1000 copies of our present programme, the mailing of some 1400 circulars, the writing of about 500 letters, the sending out of 120 duns for unpaid dues, a part of which were duplicated a month later, and a still smaller part reduplicated at a later day, the issuing of a call for relief for the Hardware merchants of New Richmond, and sundry miscellaneous work to keep me from forgetting that *this* year I was drawing a salary.

The New Richmond affair was rather forced upon me by a few members sending \$3, \$5 or \$10 and asking me to forward it, so that I issued a circular, calling attention to the matter with the result that I sent the two dealers there \$378, without any expense to the fund.

September 4 your Executive Committee authorized me to get out an

## OFFICIAL PROGRAMME.

and solicit advertising for the same, mailing at least 700 copies to the trade. I wrote 203 jobbers and manufacturers, soliciting advertisements, and received orders from 32, which brought in \$575, while the cost of the book was \$208, netting the association a handsome margin, which will appear in the report of your treasurer.

On the afternoon of June 1 I received a message from President Montgomery to meet a delegation from Minnesota at Oconomowoc the next day at noon to talk over a matter of complaint which had led to a long correspondence and hardly yet can be called settled, but I think the trip was not a vain one.

At the suggestion of our president I mailed invitations to the presidents of like associations in North Dakota, Minnesota, Illinois and Iowa to meet with us at this time, with favorable responses from some of them.

Gentlemen, I cannot close without again thanking you for your uniform courtesy and helpfulness and will bid you "God speed."

After the reading of Treasurer Schlegelmilch's report a number of papers were presented by members of the association. The paper of H. L. McNamara, Janesville, on the subject of traveling salesmen, is as follows:

#### **Relation of Traveling Men to the Retailer, from Experience.**

For nearly 20 years my mission on earth was to make myself agreeable, and I would travel day and night to find people who agreed with me that I was agreeable, and that everything about me was agreeable. In my profession to be agreeable in spots only wouldn't go. The men I saw had got to be convinced that I was all right in every way. Now, when you come to think of it, that is rather a serious proposition. Day in and day out, to strive to please, not only friends, but total strangers, is no small undertaking, and the job, for the last five years particularly, has required tactics of a high order.

But a salesman on the road has got to make a favorable impression on customers and would-be customers. Now, if he had only one side to consider—namely, to please the customer—that would be as easy as falling off a log. My, what an easy job that would be. But, unfortunately, the houses who employ us and pay our salaries and expenses would be laying for us on the under-side of the log.

To sell, or not to sell, that is the question. If you don't sell you are in hot water, and if you do sell and make yourself agreeable to the buyer by taking his order, a worse fate is likely awaiting you. So to steer clear of the devil and the deep sea, the traveling man has to be pretty level headed.

#### **CHANGES IN BUSINESS METHODS.**

During the time that I was on the road many changes in business and business methods have taken place. The first few years, all the business in my line was done by the Hardware and grocery houses. They sold and distributed the goods in those days, and made money, and we made money. To get such business and profits now would paralyze a salesman, and as for the house, they would simply stand on their heads for joy. But the work of evolution has been going on steadily, and this evolutionary process has not been of a bettering character for the old style houses. The question has come up, Has it bettered anything or helped anybody?

#### **ADJUSTING ONE'S SELF TO VARYING CONDITIONS.**

One thing we must not lose sight of. In the course of a man's lifetime he has to adjust himself to radically varying conditions of business and ways of doing business. To be abreast of the times, he must be prepared to meet the smallest innovations and be in the front rank always. By following this course the radical changes have been anticipated.

#### **THE MODERN DEPARTMENT STORE.**

In this connection, a very serious innovation in the retail business may be spoken of—viz., the modern department store. In any town of any size the new departure is to be found, and, wherever found, they do the general merchandise business, to the great detriment of the grocery and Hardware houses established on old lines. The business which these department stores get, is it all taken away from the other stores? Not all of it, for there is no doubt but that they create new trade by their bargain counters, their displays and advertising, and by their ridiculously low prices.

#### **BUYING AND SELLING FOR CASH**

The question is, How can they do this and make money? for we know that they do make money, and, in many places, seem to be the only money makers. The secret is that they sell for cash, and they buy for cash. The exclamation on the part of shoppers oftenest heard is, how cheap. They impress the buyer with their cheap prices, and that makes them popular. That their goods are also cheap does not count.

#### **NEW METHODS MUST BE ADOPTED.**

Is the regular retail store to be crowded out entirely? I don't think so, but the regulars will have to adopt new methods of doing business, and that they are doing. Good, reliable goods, at moderate prices and sold for cash, have a place yet, and always will have. At any rate, those are my sentiments, after looking the ground over very carefully, and I have been in a position to make quite extensive observations. And my experience since starting in the retail business proves to me that I was not mistaken.

#### **SALESMEN AND THE REGULAR TRADE.**

Speaking of the relation of the salesman to the buyer. The agent who is on the road for many years makes friends with the regular trade, and in time a personal friendship, outside of business, springs up, and this goes very far toward leavening the hardships of the professional drummer. I leave one town to go to another and I always know that a friendly welcome awaits me. I feel at home wherever I have customers. Views are exchanged. They want the benefit of any better information in regard to trade, conditions and prospects. The agent of to-day is honest to his business friends. He cannot afford to be otherwise. It is a matter of mutual confidence and benefit, and business conducted on these lines leaves room for some of the better elements of human nature to show themselves. This applies to the regular, as, for instance, the Hardware or the grocery or the general store, which has been my line.

#### **SALESMEN AND THE DEPARTMENT STORE.**

Let us now compare with this the relation of the salesman with the department store, and we shall find in this latter not a vestige of that friendly and confidential sentiment mentioned before. Quite the reverse. We are met for the first time and all the time with a coldness and a far offness that chills to the bone. The moment I enter one of these stores, big or little, I feel as if I had gotten into a cold storage place. When I get a chance at the buyer he looks at my card. Without looking at me, he looks at his want book. How much for toothpicks? That your lowest? How much for clothespins? Don't want any. Good-day, and you pass out. The dictionary would define that as cold-bloodedness. But the dictionary man never put himself in the salesman's place. If he had, he would have given us some other name for it, I think. There is one thing to be said about the department store. They are all business and no play, and, if there are any tricks in the trade or out of it, they are onto them.

I need not ask you, gentlemen, which kind of treatment appeals to our better natures. The one, arbitrary and harsh; the other, genial, kind and partaking of our early training, from which we all have strayed, of do unto others as ye would they should do unto you.

Another paper, read by Robert Suettinger, Two Rivers, is as follows:

#### **Paper by Robert Suettinger.**

At the request of our worthy secretary and several members of the association I take this opportunity of addressing you on the subject, "How I Do a Cash Business."

#### **A CREDIT REGIME**

For 15 years previous to 1897 I had done a retail Hardware business, principally on the credit system, and in a city where everything went on credit. I found that instead of making money and building up a large business, it was just the contrary. During the prosperous years of 1890, '91 and '92 I saved up a fair sum. In the ensuing panic what I had saved began to dwindle. Then I realized it was no use to do business for glory any longer, permitting customers to use my money and goods until they got ready to pay.

#### **FROM CREDIT TO CASH.**

So on October 1, 1896, I sent the following notice to all customers and the public in general throughout my busi-



ness territory: "Dear Sir.—On and after January 1, 1897, I shall adopt the plan of selling for cash only, for several reasons. 1. There will be no bookkeeping, books, paper, postage and an endless amount of labor. 2. No bad accounts for which the cash customer helps to pay. 3. Selling for cash enables me to give you better prices than any credit house can afford. In order to do a cash business successfully we must have cash, and our outstanding accounts must be settled at once." Wherever a party owed me I inclosed his statement with the following: "The inclosed statement shows how much you are indebted to me. Please call and settle the same at your earliest convenience. I thank you for past favors and hope under the new plan to be favored with a fair share of your patronage. I shall always carry a complete line of Hardware, Stoves, Tinware, Builders' Supplies, Paints and Oils, Sporting Goods and everything usually kept in a first-class Hardware store, and will guarantee to give you the best goods in the market at the lowest



*James Montgomery,*  
President.

prices." Besides the above I also had notices published in several newspapers throughout the county. The circulars and notices had the desired effect.

#### HOW CUSTOMERS WERE IMPRESSED.

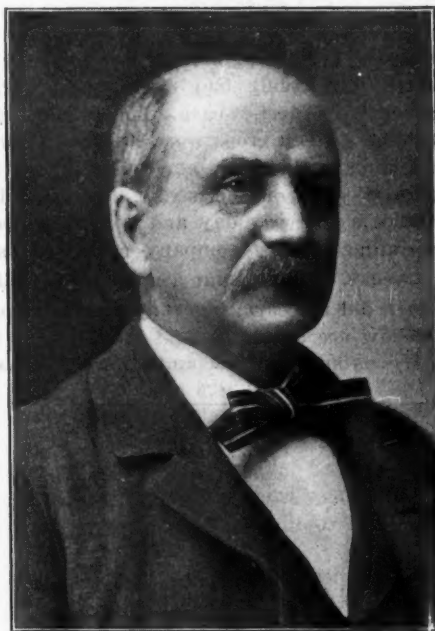
In about ten days customers began to call and tell me how foolish I was to make such a change, and a thousand other things which were not pleasant, but not a word of encouragement from anybody. I began to feel rather blue, but as I had made up my mind to do a cash business nothing could induce me to do otherwise.

#### A WORKING ARRANGEMENT WITH FACTORIES, CONTRACTORS, ETC.

I went to the manufacturers in our city to whom I sold supplies and laid my plan before them with the following proposition: "While I intend to do a strictly cash business, I know it will be impossible to send cash every time you want goods, but instead you may send a regular order, signed by the proper person, and the first of every month we will settle." They were all satisfied. With building contractors I made a similar agreement.

To private parties wanting to build a house I made this proposition: "I will furnish you all Hardware, Sash, Doors, Molding and such material as you may use in the construction of your house on the following conditions: I will keep an open account with you, and when the

house is ready to have the windows delivered and put in I shall demand 50 per cent. of bill for the goods already furnished, and when house is complete and all



*A. H. Hudson*

Vice-President.

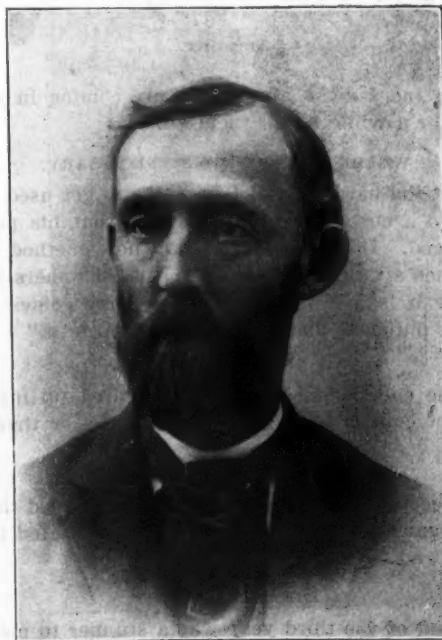
goods in my line delivered I will demand a full settlement of the account.

#### THE RESULT.

The consequence of this arrangement was, I furnished Hardware and Building Material for 75 per cent. of all buildings erected and got my pay as per contract. Otherwise I would have waited until they got ready to pay.

#### WHERE THE CUSTOMER BENEFITED.

At the beginning of the year 1897 I marked all of my goods down from 5 to 15 per cent., according to price



*C. A. Peck*

Secretary.

and demand. I also made it a point to have my prices just a little lower than my competitors, and convinced my customers that by saving them about 10 cents on

the dollar on all they bought during the year, it would make a neat sum, which they would otherwise lose, and, besides, they would have the pleasure of saying, "We do not owe for this Hardware."

#### THE INEVITABLE DIFFICULTIES.

Nevertheless, everything seemed against me. The laboring class, not having had much work during the previous year, were short of cash. The farmers had practically nothing, as their crops were almost a failure, and, to cap the climax, about 600 employees of our wooden ware factories went out on strike, for a good cause. They wanted a cash pay day and not be compelled to do their trading at the company store. This strike lasted six weeks, which meant a good many dollars the laboring men did not earn, but they finally gained their point, and now are regularly paid the fifteenth of each month. My outstanding accounts were very slow to



*Herman F. Schlegelmitch*

Treasurer.

come in, and I must admit some are coming in yet, but hope after a while to get them all.

#### WHERE BACKBONE WAS NECESSARY.

About the hardest trial I had was to get used to saying no to a customer who demanded that his purchase be charged. I had to explain my new method a hundred times a day, but finally got the customers used to it. Now it is a rare case when a party comes in and makes a purchase and then says, "Charge it."

#### ONE YEAR'S EXPERIENCE.

At the end of the first year I figured up my sales, which, of course, were not large, but better than I expected.

#### THE SECOND YEAR.

The second year the sales more than doubled the first, and I began to notice the customers appreciated trading for cash and saving the 10 per cent.

#### THE THIRD YEAR.

The end of the third year was a stunner to me. The sales were larger than at any time in the history of my business.

#### SOME BUSINESS RULES.

I have made it a point to buy only the very best goods in the market and only of legitimate dealers. No catalogue house or department store gets any of my trade. I have all my goods marked in plain figures, so a customer can readily see what the goods cost him, and have the satisfaction of knowing that everybody will have to pay the same price he does. I make this a strict business

rule, and the consequence is there is no beating down in price. I treat all customers alike, honest, fair and square, and parents send their children to buy with the same



*J. L. Janice*

Of Executive Committee.

confidence and satisfaction as though they came themselves. I also make it a point to have my store look neat and clean, and have the goods nicely arranged. I have never been a believer in cutting prices of goods below cost just to get a little trade, unless such goods were slow sellers and must be sold to make room for something more salable. We must make a legitimate profit



*J. K. Kneel*

Of Executive Committee.

or we cannot exist, and hope to see the day when all dealers will think the same.

#### A WORD TO THE HESITATING.

Now, brother Hardware dealers, don't think that it is an easy matter to do a cash Hardware business, but if you will start in right and stick everlastingly to it you will surely meet with success as I have.

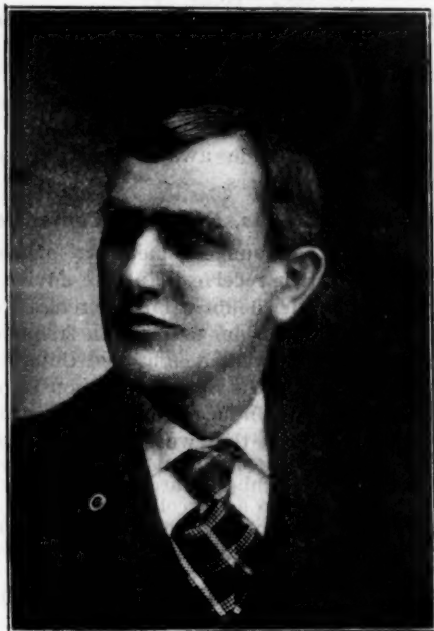


## A WARM SPOT FOR THE TRAVELING SALESMAN.

Last but not least, I have always a few minutes for the traveling salesman. I don't think we could get along without them. I always treat them like gentlemen, listen to their little song and good natured stories, even if I do not give them all an order. Gentlemen, I thank you all for your kind attention, and hope at our next annual meeting we may hear of many more who have taken the course I have, and I assure you you will never regret it as long as you live.

## WORK OF THE ASSOCIATION.

We present below views from some of the officers of the Wisconsin Association in regard to the work of the organization. It will be observed that reference is made to the need of such associations, some of the abuses



*O. P. Schlafert*

Of Executive Committee.

which may be mitigated or entirely corrected through them, the value of social acquaintance between competitors, the practical benefit derived from attendance at the annual meetings, the nominal expense attached to membership and the importance of the retail Hardwaremen presenting a united front against those who would inflict perhaps mortal injury in their business affairs.

The statements set forth coming from gentlemen who have been conspicuous in the counsels of the association and the prosecution of its work and are gratified with the results thus far accomplished, will be of special interest:

## From James Montgomery, President.

I would urge upon every retail Hardware dealer in the State of Wisconsin to do two things:

The first is to connect himself with the Wisconsin Retail Hardware Association at once. 2. To subscribe for some good journal devoting its columns to the Hardware and Iron trade.

These two suggestions, if faithfully adopted and lived up to, would make many dealers throughout the State successful, while to-day they are the opposite.

As well might a young housewife expect to succeed at housekeeping without a cook book, or a young lawyer rise in his profession without a copy of Blackstone, as a Hardware dealer to succeed without a good live, up to date Hardware paper to consult.

## From Herman F. Schlegelmilch, Treasurer.

The Wisconsin Hardware Association was organized for the purpose of bringing the retail dealers of the State into closer communion, to take such action as would help them secure the co-operation of the manufacturers

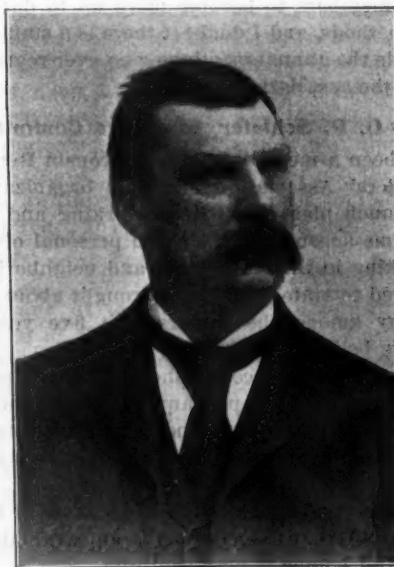


*Arthur Heina*

Of Executive Committee.

and the jobbers in protecting the trade from illegitimate competition, and to derive the benefits of closer acquaintance and the discussions of such questions as often arise among the trade and are of difficult solution.

Although not everything that is wished for, yet something has been accomplished in obtaining the assistance of the jobbers and many of the manufacturers in the first named project; there are many of these who are not afraid to show that they prefer the good will and the pa-



*H. L. McManis*

tronage of the legitimate trade to that of the department store and the catalogue house.

Some firms have tried to act in a double capacity by selling direct to the consumer in one city and to the trade

only in others; these the association is also enabled to expose in a true light.

Aside from the social benefits derived and the many pleasant acquaintanceships formed, the discussion of trade methods and the papers read at the meetings may be of incalculable benefit to those who wish to profit thereby. Success in modern business requires greater study to-day than in the past, and the annual meetings of the association may be made so as to give the result of a post graduate course, to brighten the intellects of the members and give them many new and valuable ideas.

This may be especially so as to such younger merchants as are anxious to learn and willing to profit from the experience of the older members.

There is no law which prohibits any dealer from selling any article of merchandise he chooses and at whatever price he may choose to make.

Selling goods known to the trade as seconds as perfect articles, at prices less than the cost of perfect goods under the name of "Bargain Sales;" imitations as well-known genuine articles, at similarly low prices and all with a profit, these are some of the tactics pursued by many of the department stores.

The efforts of the association might be profitably directed toward securing a remedy for the above mentioned ills. There should be a law enacted requiring every cheap imitation of a good article to be branded as an imitation, and every second to be plainly stamped as such. There should also be a law to prohibit fake advertising, and imposing a heavy penalty upon any one who does not live up to his advertisements in every respect.

But the entire future success of the retail Hardware organizations lies in the formation of strong associations in every State in the Union, combined into a National Association.

Then there will be enough strength combined to compel manufacturers to side with either the regular dealer or the illegitimate trade. It may be a test of many small capitalized merchants organized against a few large capitalized merchants. Should the latter win, then let all who can open a department store or start a catalogue business and the problem will then surely work out its own solution.

But whether the points striven after are gained or lost organization among the retail dealers cannot but be productive of much good. It broadens the mind and helps the members to become more up to date in their business methods, and I doubt if there is a single member who attends the annual meetings who ever regretted having joined the association.

#### From O. P. Schlafer, Executive Committee.

I have been a member of the Wisconsin Retail Hardware Dealers' Association since its organization, and am very much pleased with its working and the good results it has accomplished. From personal observation of its working in this (Appleton) and neighboring cities, I am pleased to state that it has brought about a feeling of harmony among the dealers that five years ago I would have believed impossible.

If the association accomplished nothing further than this it would more than pay any dealer for the expense and time it costs to be a member. And with its steadily increasing membership the association expects to accomplish much more than it has.

Your method of giving detailed accounts of the meetings of the different associations is an invaluable aid to the cause and I hope it may continue.

#### From J. Kornely, Executive Committee.

I joined the association on the first day it was organized and have attended all its meetings, and therefore have some knowledge of the work done, which is more than a great many of my brother Hardware dealers realize, even those who are members, if they do not attend the meetings.

Very few dealers are aware that through the efforts

of the association most jobbers as well as manufacturers have promised not to sell to the objectionable department houses.

I believe sincerely that had the retail dealers been organized before these stores came into existence we would not be bothered with them to-day. Before our association was organized the jobbers and manufacturers with rare exceptions sold to anybody at same or, if necessary to make the sale, lower prices than to the regular Hardware or Stove dealer. This the association aims to stop entirely, and it will succeed, provided it continues to educate those that may not have seen the necessity of joining the association. I really cannot comprehend how a business man can be so timid. The manufacturers and jobbers have their associations for the benefit of themselves, not for the retailer. It seems to me it is our duty to be united at present and in future to guard our own interests.

The little expense connected will surely be a profitable investment to every dealer. It is worth that alone to listen to the papers read at the meetings and exchange ideas, learn from others' experiences, become better acquainted and thereby create confidence in each other. I expect all wide awake Hardwaremen will gradually become members.

#### From Arthur Heins, Executive Committee.

Being one of the youngest members of the association I always rather receive than give advice.

*The Iron Age* has no doubt a large circulation in our State, and by alluding to our association frequently, announcing in bold terms that it is a good thing and that every Hardwareman in the State of Wisconsin ought to join, would no doubt induce some—I hope many—to come. Not with an idea that we have accomplished all our aims, I hope, but to come and help us do so. To be in touch with our neighbor Hardwaremen, for which our annual meetings are an excellent occasion, alone is worth many times the expense of attending them.

### Walter W. Woodruff & Sons Company.

THE WALTER W. WOODRUFF & SONS COMPANY, Mount Carmel, Conn., on the 24th ult. purchased the entire Hardware and specialty manufacturing business of F. V. Wooster, Boston, Mass., including the patterns, tools and machinery, and patents pertaining to same, and will continue the manufacture of all such goods as are desired by the trade, including Double Lock Whiffletree Plates, Spring Couplings and Links, Breeching Hooks, both threaded and bolted, Front Whiffletree Couplings, Goddard Slat Irons, Goddard Uprights, Wrought Steel Whiffletree Ferrules, Whiffletree Hooks, threaded and nickel plated, Coach Axle Clips, Axle Saddle Clips, Axe Wedges and Dolber's Storm Window Fasteners. These added to their already large lines of Coach and Carriage Hardware, Mountings and Specialties give them a very extensive variety of goods. The company will endeavor to maintain the standard of the lines thus purchased, and state that Mr. Wooster has turned over to them all unfilled orders, which will be filled as soon as the company can get the machinery set up in their factory and the necessary material. For the present the discount sheet issued by Mr. Wooster under date of January 1, 1900, will be followed. The company will shortly issue a supplement to their catalogue which will contain the above goods, as well as many other additions to their regular line, and at that time they will also send out a new discount sheet, prices meantime being subject to change without notice.

### Brass Goods Mfg. Company's Catalogue.

BRASS GOODS MFG. COMPANY, 86-92 Third street, Brooklyn, issue a 1900 catalogue of 148 pages, illustrating Brass and Bronze Hardware. Forty odd pages contain many sorts and kinds of Hinges, from very small to large, both ornamental and staple kinds. Then are shown Refrigerator Hinges, Catches, Locks, &c., Escutcheons, Box Corners, Card Holders, Hooks, Lifts, Brackets, Corner Plates, Box Catches, Key Checks and Tags, Letters and Figures, and specialties of various kinds in brass, bronze, wrought iron and steel, cast iron, &c.



## Indiana Retail Hardware Association.

**T**HE third semiannual meeting of the Southern Indiana Retail Hardware Association opened this morning (Wednesday) at Evansville, the delegates assembling in the hall of the Business Men's Association.

The morning was devoted to the preparation of a programme and the convention was not formally opened until the afternoon, when the first session was called to order at 2 o'clock.

### A Large Attendance.

The attendance was a gratifying one and indications at this hour point to a gathering of 150 merchants.

### The First Session.

After roll call and reading of the minutes of the last meeting, W. H. Weed of Vincennes, president of the association, delivered the following address:

#### President Weed's Address.

I have never yet been accused of being an orator and I cannot believe any of you present to-day will make any such accusation. The best part of my life so far has been devoted to selling Hardware. I have therefore had little time to devote to speech making.

One year ago we organized this association in the beautiful and progressive city of Princeton, and I feel that we all have much cause for congratulation, for we have caused a kindly feeling to grow between competitors and have come to look on them as friends instead of enemies, all working for one common cause—namely, the upbuilding of the Hardware business and making an honorable living.

This is our aim, and aside from correcting the evils that are creeping into the business we are brought together in a social way which should well repay us for our trouble in the building up of this association.

I will not undertake here to-day to treat on any one subject, as I know there are others here who have subjects assigned them and no doubt will be given your close attention. Sufficient to say we have had

#### A HEALTHY GROWTH

and have a number of new members from the northern part of the State whom we want to coincide with, for it takes the same curative dose for one that it does for all. The striking out of the word "Southern" and having the name of the Indiana Retail Hardware Dealers' Association henceforth would in my opinion be only justice to the dealers throughout the State, of whom we are expecting much in the future, and a resolution to this effect will no doubt be introduced at this meeting.

#### CLASSIFIED LISTS.

There are a number of things I hope to hear discussed at this meeting. First, I note by the January 4 issue of *The Iron Age* that since the forming of so many trusts or combinations (as some wish to call them) we are classified in such a way that small purchasers have to pay a much higher rate than formerly. Can we buy staples together and reduce costs?

#### STOVES.

Second, why not use our influence with other State associations to induce the Stove manufacturers to renew the old terms. This I feel would benefit us in many ways. The 5 per cent. discount was an incentive in pushing collections. The four months' terms gave us an opportunity to put in our fall stock before the busy season and time to realize on part at least before due.

The active interest that is being shown throughout the country goes to convince us there is a growing need for this association and should encourage all to strive the harder for increasing its membership until we have enrolled the name of every dealer throughout the State.

### Change in Name of Association.

A motion was made to suspend the rules and change the name of the association to that of the Indiana Retail Hardware Association. The motion was adopted.

Those merchants present not members of the association who were desirous of enrolling themselves in it were invited to present their names to the secretary, after which Irving A. Sibley of South Bend addressed the association.

W. W. Robb, New Harmony, secretary-treasurer, presented his report, which is as follows:

### Secretary's Report.

It is with pleasure that we submit the following report of the term just ending:

Less than one year ago, in obedience to a call from J. R. Boyde of the firm of French & Boyde of Poseyville, Ind., a number of the retail Hardware dealers met at Princeton, Ind., and organized our association with a charter membership of 19 firms, all of whom were south of Vincennes and Washington, Ind., inclusive. At our second or semiannual meeting at Washington three other firms were added to the list.

Prior to this meeting want of time and a reliable list of the retail dealers in the State prevented much effort being made toward increasing our membership, and it was not until about October 1, 1899, that we secured, through the editor of *The Iron Age*, a directory of the dealers in the United States, which enabled us to get printed matter circulated, not only in our own State, but those of Illinois, Kentucky and Ohio. These States, however, have not responded, other than to acknowledge receipt of same and bid us "God speed" in our work. But the dealers in our own State have responded until over 100 are enrolled as members and more than that number of letters on file to be approved at this meeting.

#### RESOLUTIONS AND LAWS.

At the first meeting your special Committee on Resolution and By-Laws drafted a copy of such resolution as they deemed appropriate, and we had 1500 copies each of these and application blanks printed and mailed to dealers throughout the State.

They also recommended that the constitution of the Northern Indiana Retail Hardware Association be adopted as the constitution and by-laws of this association, but upon a careful reading of the same we pronounced it very incomplete and took the liberty of revising the same, a copy of which met the approval of your president, was made a part of the record and adopted at the meeting on August 2, 1899. We have had printed 250 copies and mailed one to each of the members.

#### CIRCULARS AND INVITATIONS.

Believing at the time of our organization that the association of the northern dealers was in progress, we had special instruction to invite the officers of the same to attend our semiannual meeting at Washington, Ind., on August 2, but on account of indefinite information concerning them the matter was overlooked and no invitation extended. For this oversight we offer to them our personal apology and exonerate the association in their behalf.

To this meeting we have extended invitations to the officers (and such members as we could secure the address of) of the Chicago Retail Dealers' Association, Illinois Retail Hardware Dealers' Association, Louisville Retail Hardware and Stove Dealers' Association, Ohio Retail Hardware Association and Iowa Retail Hardware Association, all of which have acknowledged the receipt of same and extend greetings and compliments of the season.

During the month of November we had printed 2000

copies of the circular letter as prepared by your committee on same and 1000 copies of the resolution, which we mailed to dealers throughout the State and close towns in the bordering States.

Following these during the month of January we had printed and mailed 2000 copies of a third circular calling the attention of the recipients of the same to condition of our business, the objects and need of this association, the date of this meeting, and making an appeal for a united effort to bring about a better condition of affairs, which seems to have met the approval and warm reception of a large majority of those receiving it.

#### GRIEVANCES.

No grievance has thus far been filed or reported, but we have, however, had personal experience in two cases which are true illustrations of the source of the trouble between the jobbers and retailers to-day, and we think are just causes for this and like associations.

In each of these cases the jobber sold Builders' Hardware direct to the consumer (parties having houses built).

In the first case the customer went to the store of



*W. H. Mead.*

President.

the jobber, made his selection and had it shipped to him. As soon as the facts were known we had a personal interview with the traveling salesman of that territory and a satisfactory adjustment was made.

In the other case the order was placed by mail, and as soon as these facts were known we wrote them as secretary of the association, inclosing a copy of our resolutions and asking if they were bidding on the material. Their reply was to the effect that they had mailed the purchaser an estimate on the bill and were in receipt of the order for same—but would hold the shipment of the goods subject to our instructions.

Our instructions were to ship the goods to the customer as ordered, explaining at the same time that we were bidding on the same job and if they expected to continue selling to the consumer direct we would have to act in accordance with the by-law of our association. They then refused to ship the goods to the customer, but made the shipment to ourselves and allowed a commission on the same.

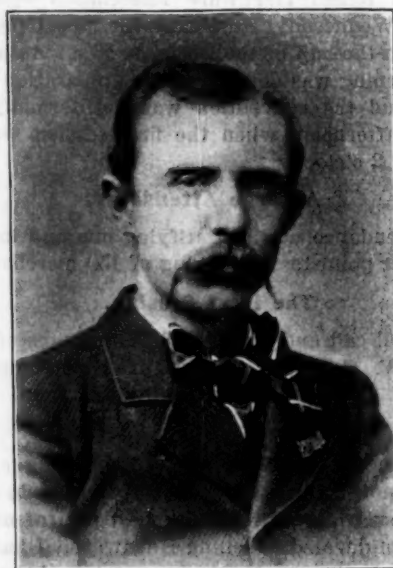
#### RESOLUTIONS AND RECOMMENDATIONS.

Believing that the time has arrived when steps should be taken to organize a national retail Hardware association and that we can do much to promote its progress during this meeting, we offer the following resolutions and recommend their adoption for immediate action:

*Resolved*, That the president is hereby instructed to appoint a special committee of three, whose duty it

shall be to formulate and introduce a mode of procedure by which we can effect the organization of a national retail Hardware association and report to this assembly.

*Resolved*, That if there be visitors (from other retail Hardware associations or retail dealers from other States) in attendance at this meeting, that one from each



*J. M. Roll.*

Secretary.

association or State be selected to accept appointments on this committee and assist in the work thereof.

*Resolved*, That a copy of the report of committee be forwarded to the secretaries of the Illinois, Ohio, Louisville, Iowa and Chicago retail Hardware associations, all of which hold their annual meetings at their respective places during the present month.

#### NATIONAL ASSOCIATION.

Believing as we do that the matter of organizing a national association should be acted upon immediately, and that a full and complete plan can be gotten before the several conventions mentioned, we ask that you give this special attention.

We are in receipt of copies of the constitution of each



*James M. Hantlin.*

of the above named associations; also letters of advice, through which we find that we have every reason to congratulate ourselves upon the condition of our association and the progress we have made since our organization.



We believe that we are at par with the strongest of these and a prospect of becoming the banner association.

And in conclusion let me say that I esteem it a great pleasure to come in contact with and a great honor to occupy the office of secretary in this body of intelligent men. The history of these associations is that they are upbuilding institutions, that they tend to bring men closer together that they may know the experience and have a higher appreciation of each other. Then let us not falter and fall by the wayside, but push forward to success, and now, as my term of office expires, I am reminded that it is to you I am indebted for the honors bestowed, and that I am especially indebted to M. G. Corey of Argos, Ind., who rendered most valuable assistance and to whom we are indebted for much of the interest created in the northern part of the State. To him it was promised that the word "Southern" should be dropped from our name, which we trust you will do before the close of the session.

We also owe much to E. M. Bush and H. I. Simmons of Evansville and Louis Kindirman of Boonville, whose valuable assistance, combined with the untiring ability of President W. H. Weed of Vincennes, has made our service in this capacity one of pleasure and, we hope, of profit. And inasmuch as our labors may not have been crowned with the desired success, we herein offer thanks for the compliment bestowed upon us in our election to this office.

It will be observed that Mr. Robb urged that special action be taken in the matter of the formation of a national retail Hardware association.

#### Discussion.

After the appointment of several special committees, a discussion of the subject, "What Have You Done for the Good of the Association: What Can You Do in the Coming year: What Shall We Plan to Accomplish?" was opened by Mr. Boonshot of Shawhan, Boonshot & Co., Petersburg.

This evening a smoker and entertainment will be tendered to the delegates, at which the Mayor of the city is expected to make an address.

To-morrow's sessions will be principally devoted to the reading of papers on and discussion of topics of practical interest to the trade. One of the papers, by J. M. Scantlin of Princeton, is as follows:

#### J. M. Scantlin's Paper.

I received a communication a short time since from a committee of three, stating that I had been assigned an address for this meeting on "Our Duty to Our Association, to Our Competitor, to the Knight of the Grip (Is he friend or enemy?)."

You have no doubt heard of the terrible blizzards that often sweep over our Northwestern States. You have heard of the bitter cold of Alaska and of the ever frozen regions still further north. Perhaps you younger men have even felt the icy chills of unrequited love chase each other up and down your spinal column, when the object of your affection presented you with the mitten, but have any of you ever seen the thermometer so low that it equaled the coolness displayed in this communication from the committee of three? "Assigned an address." "Programmes will be printed in a few days." "Will send you one." Did not even ask if I would accept.

The subject for the address was a good one, but as I had neither time nor ability to do it justice I made up my mind to positively decline. Before writing them to that effect I reread their letter. They had divided my proposed address into three parts, firstly, secondly and thirdly. Firstly caught my eye and riveted my attention: "Our Duty to Our Association." I studied a while and then slowly reread it: "Our-Duty-to-Our-Association." The letters seemed larger, the words more impressive and the whole sentence more full of meaning. Had I ever done anything for our association, and was I about to decline the first duty that had been assigned to

me? Unaccustomed to it as I am it is not pleasant work for me to prepare an address, and the worst part of it is that it can hardly be called an address after it is prepared, but I can at least occupy a small part of your time, and that may be doing all the committee expected of me.

#### VITAL ENERGY.

We meet together semiannually to make new acquaintances, to renew old ones, to compare notes in regard to the buying and selling price of Hardware and to transact such business as may properly come before us. Our association is made up of individuals. As a body it can have no life unless the individuals composing that body put their vital energy into it. Suppose our beloved America had been a nation of sluggards, would it ever have occupied the proud position in the world it now does? Suppose you and I had been born tired, would we be in business now, or would we have organized this association for the advancement of our business? I take it for granted that we are all satisfied that this association can in no manner injure our business, but rather that it will tend toward its improvement. There is nothing in this world worth having that is not worth working for. If we desire any good accomplished by our semiannual meetings—if we wish an adequate return for the time and money we expend attending these meetings—we must each of us be willing to bear a little of the burden, to do a little of the work. Although our numbers are not yet very great, what a wonderful association we would have, how prolific of good results, if each member would do his whole duty! Some of us may not be able to accomplish much, but we should at least make the attempt to "do what our hands find to do." "Act well your part, therein (the profit as well as) the honor lies."

#### COMBINATIONS OF THE STRONG AND WEAK.

Combinations appear to be the order of the day. A combination of the strong for an aggressive warfare upon the weak, however it may accord with the views of some of our modern business men, certainly is not in accordance with the laws of a just God, or with the honest views of a true man. All such combinations may flourish for a time, but the history of the world tells us that it is only for a time. A combination of the weak for a defensive warfare against the aggressions of the powerful and unscrupulous is justifiable in the eyes of God and man.

#### SHOULDER TO SHOULDER.

With the department stores on the one hand and the trusts on the other, the retail Hardware dealers of this country find themselves between "the devil and the deep sea." As individuals we are weak and can do but little to stop the car of Juggernaut that would crush the life out of our business. Collectively we may be able to accomplish much, therefore we should all stand shoulder to shoulder and lined up as a strong body before the enemy. Each member of this association should help the others fight the battle that we all know is before us.

#### OUR DUTY TO OUR COMPETITOR.

Whenever you see a serpent's head, crush it without mercy. The retail dealers have been following this plan of campaign for 'lo! these many years. Anything honorable or otherwise to down a competitor, even if we go under ourselves in the effort. Nails at 3 cents per pound when they cost 4 cents, Loaded Shells at 35 cents when they cost 37 cents, Fence Wire at 3½ cents when it costs more (especially if we happen to be out of them at the time). This will make the customer think our competitor is high priced and may be the means of breaking him up in business. What if it does react and we find ourselves unable to pay our bills? We have the proud satisfaction of knowing that we have ruined our competitor and impoverished his family. We have hit him squarely in the head with our shillalah—no, I mean our boomerang. How much nicer it is to so conduct ourselves in business that we are not ashamed to look our competitor in the face! How much better to have the good will and the

friendship of our competitor and his family! The cheerful greeting, the friendly hand shake, the joy and the gladness that fill one's being are not measured by dollars and cents.

#### THE BATTLE OF LIFE.

I realize that to a certain extent business competitors are foes fighting for the same goal, running the same race, trying to climb the same golden ladder, but is it necessary to success, while carrying on this battle, to throw away our manhood, sacrifice our friendships and make life's pathway a rough and barren road? The best part of the average man's life is devoted to business, a mighty struggle for long weary months and years for bread and butter and a competency for old age. Why should we make the struggle harder, why should we make the dark days seem darker and dim the luster of the bright ones by evil thoughts of our competitor, or evil actions toward him? Suppose we try the other road, meet our competitor with a happy smile and a hearty hand shake, speak at least as well of him behind his back as we do to his face, not try to keep him from making a profit simply because we can't, so that when life's business battle is ended and we lay down our arms for the much needed rest, we can look back over the weary road without a regret and will then have, instead of an enemy, our old time competitor as a friend and companion.

#### OUR DUTY TO THE KNIGHT OF THE GRIP.

Is he friend or enemy? I presume we all have about the same experience with the myriads of the Knights of the Grip who infest the country from ocean to ocean and from the lakes to the gulf. While not so annoying, yet at times they appear to be almost as "thick as fleas on a dog's back." They are "hall fellows well met" with everybody, and as a rule are a gentlemanly and upright set of men. The question is asked: "Is he friend or enemy?" There is no question in my mind about it. I consider him the business man's best friend. He is not always a handsome man, but he is thoroughly posted in his business, as well as in all the news of the world, from the latest marriage in the Sulu Islands to the birth of twin calves in the next county. He is as sharp as the tacks he sells, quick at repartee and as willing to take a joke as to give one. He comes like a sunbeam on a dark, gloomy day, when our sales are few and far between. He dissipates the gloom. With his wit and his cheerful manners he livens up the old man of the house until, forgetting his blues, he doesn't care whether he sells a dollar's worth that day or not.

#### THE TRAVELER A USEFUL FRIEND.

You cannot buy goods of all of them, but you can treat them all as gentlemen. By doing so you keep your own self respect, gain them as friends and make money in the operation. You ask: How do you make money? By the information they give you as to changes in prices, new goods that are on the market, and a thousand and one things pertaining to your business that are worth money to the wide awake merchant.

If you get mad at something that has gone wrong in your store, don't take it out on the innocent drummer who drops in at this time. You had better go out in the street, knock some one down and pay a fine for it. It will pay you better in the long run. The golden rule should hold good in this as in all the other affairs of men, that is, treat every Knight of the Grip who visits you as you would have him treat you under like circumstances.

#### THE SMART ALECKS.

I have said that I considered the Knight of the Grip the business man's best friend. As a rule this is so, but there are exceptions to all rules. There are some smart Alecks who claim to know more about your business than you do yourself. If you attempt to swallow half they say it will leave a bad taste in your mouth. They tell you a house of your standing of course would order a gross, when if they know anything they ought to know a half dozen would last you six months. They persist in talking to you when they see you are busy with a customer, and they insist on your buying of them after you

have repeatedly told them you were overstocked with goods in their line. This kind of an animal, though, is almost extinct. Like the hyena and the skunk, he is rapidly passing away, and in the sweet by and by the beautiful green grass will wave a sad requiem over his desolate grave. Peace to his cinders.

The polished and polite gentleman who holds you up in your store comes with a fund of information that is both

#### ENTERTAINING AND INSTRUCTIVE.

He can extol the merits of his particular brand of calf weaners with the magic eloquence of a Patrick Henry, or at the opportune time he can electrify you with burning words of patriotism. These men are not only a power in the commercial world, but they are a mighty power to voice the sentiments of the American people, to warn them of the hidden dangers that lie beyond, and to uphold the honor and the integrity of our native land. A strong, a willing and able power is needed in these perilous times, when inordinate greed would take the land from an unwilling people or concentrate the trade of the many into the hands of the few.

But these men and others like them will bravely man the ship of State, and through storm and through tempest they will safely guide her into the harbor. With true patriotism they can see their country's mistakes and are willing to acknowledge her faults, but they will ever join in the noble sentiment contained in that immortal toast: "Here's to my country, may she always be right, but here's to my country, right or wrong."

#### CONTENTS.

	PAGE.
The Most Perfect Machine Shop.—VI. Illustrated.....	1
The Federal Bankruptcy Law.....	1
New Union Station at Pittsburgh.....	1
The McClintick-Marshall Construction Company.....	4
New Steel Plant at Canal Dover, Ohio.....	4
The Talbot Continuous Open Hearth Steel Process.....	5
A Charcoal Furnace Record.....	7
The Schumacher & Boye Electrically Driven Engine Lathe. Ill.	8
Canadian News.....	8
The Linch & Karlson Pipe Joint and Connection. Illustrated..	9
The Payne Ship Subsidy Bill.....	10
Lake Iron Ore Matters.....	11
The Cincinnati Upright Drill. Illustrated.....	12
The Work of Our Shipyards.....	13
National Founders' Association.....	14
Three Systems of Selling Pig Iron.....	17
The French Reciprocity Treaty.....	20
A New Coal Mine Scale.....	20
Editorials:	
Manufacturers' Defensive Organizations.....	21
The Talbot Continuous Basic Open Hearth Steel Process.....	21
New Enterprises and Present Profits.....	22
Shop Extension.....	22
A Further Increase in Pig Iron Production.....	23
Central Pennsylvania News.....	24
A Plan to Start the Troy Steel Works.....	24
The American Appraisal Company.....	24
The Maryland Steel Company.....	24
Manufacturing:	
Iron and Steel.....	25
Machinery.....	25
Hardware.....	25
The Iron and Metal Trades:	
A Comparison of Prices.....	26
Chicago.....	26
Cleveland.....	27
St. Louis.....	28
Cincinnati.....	28
Pittsburgh.....	29
Philadelphia.....	30
Birmingham.....	31
New York.....	31
Metal Market.....	31
Personal.....	32
The American Steel & Wire Company.....	33
Obituary.....	33
Iron and Industrial Stocks.....	34
Trade Publications.....	34
The New York Machinery Market.....	35
The Cleveland Machinery Market.....	36
Hardware:	
Condition of Trade.....	38
Notes on Prices.....	39
Hardware Organizations.....	41
Souvenir Hardware Album.....	42
H. D. Smith & Co.....	42
Trade Items.....	42
Wisconsin Retail Hardware Association. Portraits.....	43
Walter W. Woodruff & Sons Company.....	50
Brass Goods Mfg. Company's Catalogue.....	50
Indiana Retail Hardware Association. Portraits.....	51
Australian Letter.....	55
Price-Lists, Circulars, &c.....	55
Among the Hardware Trade.....	55
Bench Hook and Viso. Illustrated.....	56
American Springless Lock. Illustrated.....	56
An Automobile Bell. Illustrated.....	57
The XX High Wheel Mower. Illustrated.....	57
Adjustable Canopy Support. Illustrated.....	57
Banner Gas Lamp. Illustrated.....	58
The Twin Hung Spout. Illustrated.....	58
Atkins Tubular Wood Saw. Illustrated.....	58
Current Hardware Prices.....	59
Current Metal Prices.....	60



## Australian Letter.

FROM A SPECIAL CORRESPONDENT.

MELBOURNE, January 2, 1900.

**THE MARKET.**—December proved a satisfactory month in Hardware circles, both in the wholesale and retail trades. The English and American markets seem to keep very firm, advices all showing that manufacturers are full of orders and not inclined to quote ahead. Indications are for much higher values here in the near future. The Australian demand for Iron is an ever increasing one, and it is the writer's opinion, based additionally on that of several local users, that the price will go at least £2 higher (probably more) in the near future.

**WIRE.**—American fencing Wire, No. 8, is now quoted at £11 10s., German No. 8 being quoted at £12. The "Dumfriesshire" has just arrived with over 5000 coils of the former, so the price may temporarily slacken. In Barbed Wire, 12 and 14 gauge, local makers are kept busy, and their makes are quoted £16 and £18, respectively.

A Melbourne firm have just offered the Victorian Government a supply of Barbed Wire as a contribution for the Colonial troops engaged in South Africa. At latest our Minister of Defense is still scratching his head, and wondering whether to treat the offer seriously, or as a piece of gentle sarcasm.

**STAMPED STEEL CEILINGS** are slowly working in here, but are too expensive at present for ordinary builders' use.

**BEDSTEADS.**—The local bedstead makers are very busy, and prices are going up in sympathy with the additional cost of raw materials. Local makes have a stronghold on the Victorian market, and if America wishes a fair share of Australian trade, she must not begin, as she appears to wish to, with the expensive Brass Bedsteads, but must cut in on the cheaper lines and work upward. Your makers have so far neglected this branch of trade, or, at best, have only made fitful endeavors to capture it. The time is now, if ever, while the market is on the rise. Doubtless your raw materials have risen, but the English makers are behind with their orders, and the local article does not meet all demands. A certain amount of prejudice would have to be lived down, but this would give way to business considerations in the matter of price.

**SANITARY APPLIANCES.**—The Melbourne sewerage scheme has seen, so far, only 20,000 houses connected out of a total of 100,000. Progress is being made at the rate of 10,000 houses a year. The average minimum cost, per house, for connections, is about £12, while for the fittings of large buildings, hotels, &c., the bill frequently runs into several hundreds of pounds. American firms appear to have ignored this scheme altogether, although the demand for sanitary fixings of all sorts, plumbers' supplies, &c., should have proved, and should even yet prove well worthy the attention of your manufacturers.

**FANS.**—Small air Fans, say electrical, for household purposes, may also be classed among Australia's neglected lines, and would require little pushing to make them popular.

## Price-Lists, Circulars, &c.

**STOWELL MFG. & FOUNDRY COMPANY**, South Milwaukee, Wis.: "Stowell's Booklet," giving illustrations and descriptions of some of the products of this company, comprising Door Hangers both for barn doors and parlor doors, Hot Air Registers, &c. They call attention particularly to their Twentieth Century Hanger, which is ball bearing, has a sliding axle to prevent the door from jumping the track and is not only strong and durable but very neat in appearance.

**HARDWARE SUPPLY COMPANY**, Grand Rapids, Mich.: Triumph Work Benches and Attachments. Benches for use of cabinet makers or carpenters, carvers and youths are shown, also Hight Adjusters and Adjustable Work Support, Carvers' Vise, Youths' Vises and Adjustable Steel Screw Clamp Head.

**MESINGER MFG. COMPANY**, 1801 and 1803 First avenue, New York: Illustrated circular of Mesinger Saddles. They are shown with and without springs for male and female riders.

**P. & F. CORBIN**, New Britain, Conn.: Two illustrated booklets, one describing the New Departure Automatic Coasting Hub and Brake and the line of Ramsey's Swing-ing Pedals. The other, in addition to the goods mentioned above, contains Bicycle and Automobile parts such as Hubs, Hub Shells, Dust Caps, Head Cases, Ball Cases, Cones, Nuts, Seat Post and Handle Bar Bolts, Screws, &c.

**THE BRIDGEPORT GUN IMPLEMENT COMPANY**, 313-315 Broadway, New York: Trade catalogue of Golf Goods. This includes Balls, Caddie Bags, Markers, Direction Flags and general Golf Supplies.

**MAST, FOOS & Co.**, Springfield, Ohio: Catalogue No. 14 covering their lines of goods. These include Force and Lift Pumps, Wind Mills, Wind Mill Derricks, Lawn Mowers, Iron Fencing and Cresting.

## Among the Hardware Trade.

The firm of Little & Clark, Louisville, Ga., after an existence of a quarter of a century, was dissolved on the 1st ult., S. M. Clark retiring. The business is now being conducted under the style of Little, Williams & Co.

Grigsby & Co. are successors to W. B. Grigsby & Co., general merchants, Bardstown, Ky. They have a paid-in capital of \$25,000, and handle besides Hardware and Farm Implements, Buggies, Wagons, Seeds, Harness, Lumber, Lime, Coal, Grain, &c.

Barnard Smith & Co., Jackson, Mich., have sold their business to Smith & Winchester Hardware Company, who will continue at the old stand. The store was established 17 years ago.

Chippewa Hardware Company, wholesale and retail Hardware, Stoves, Tinware, &c., Sault Ste. Marie, Mich., have agreed to sell their stock, fixtures, &c., to the Soo Hardware Company of that city, and will retire from business.

Erwin Griffin & Miller is the style under which the Miller Hardware business at Ladonia, Tex., is now carried on.

E. H. Mitchell, Hallettsville, Tex., has sold out his stock of Dry Goods to Peter Reska, and will hereafter deal in Hardware, Farm Implements and Groceries exclusively, which he will handle both wholesale and retail.

Cooke, Clark & Co., who for the past 11 years have conducted the Sash, Door and Blind and Builders' Supply business at 84 Commercial Place and 87 Roanoke avenue, Norfolk, Va., have sold their stock and good will to Frank T. Clark Company, Limited, who will continue at the old stand. Mr. Clark, the president of the company, has been a member of the old firm since they were organized, and prior to that time for 13 years was connected with the establishment of Luther Sheldon, the pioneer Sash, Door and Blind merchant of Norfolk. Charles Samson, Jr., the secretary, was for six years with Cooke, Clark & Co., in charge of the Hardware and Mantel departments. C. C. Walton, treasurer, was in command of the books and office work of the old firm since their organization. All the employees of the old concern have been retained.

John T. S. Hyde, recently with the Wardwell Hardware Company, has associated himself with Anton J. Raffauf under the firm name of Raffauf & Hyde, with office and store at 122 West Dominick street, Rome, N. Y., where they will carry a complete line of Builders' and Carriage Makers' Supplies, Bicycles and Bicycle Sundries.

W. H. Sanders and Harry Pinney of Mankato, Minn., have purchased a Hardware store at Kinbrae, which they will operate under the style of Sanders & Pinney. They are intending to remodel and improve the store and enlarge the stock thus acquired.

Wooldridge & Huffman have succeeded E. Spaulding & Co., Lyndon, Kan., in the Hardware, Stove and Grocery business.

Mr. Gary has retired from the firm of Boykin & Gary, Greenville, Tex., and the business is now conducted under his own name by J. M. Boykin.

Lude & Egger have built an addition to their Hardware store building in Woodsfield, Ohio, which will be used as a Harness room and Carriage warehouse.

Hamilton Bros. have succeeded H. C. Hamilton in the retail Hardware business at Stockton, Kan.

C. S. Allen has purchased the Hardware stock of L. T. Fuller, Calvert, Tex., and will continue at the old stand.

S. J. Gilbert, Arkansas City, Kan., has bought the Sipes business and it will hereafter be conducted under the style of the Sipes Hardware Store, Gilbert & Sturtz, proprietors.

On the 15th ult., Saltness & Belsass succeeded E. N. Swann in the Hardware business at Boyd, Minn.

Lillard & Co. have sold their stock of Hardware in Davis, I. T., to S. J. Garner.

The Thomson-Diggs Company, wholesale Shelf and Heavy Hardware, Farming Implements and Vehicles, Sacramento, Cal., have incorporated with a capital stock of \$15,000. The company have made extensive improvements in the store and put additional men on the road.

M. W. Cooper has succeeded Cooper & Millmon at Leon, N. Y. Mr. Cooper will change the former method of doing business and sell for cash only.

S. F. Green of Osseo and F. W. Payne of Coldwater, Mich., have purchased the business of Geo. W. Morehouse, North Adams, and will continue under the style of Payne & Green.

Boescke-Dawe Company, Santa Barbara, Cal., have been incorporated with a capital stock of \$60,000 and the following directors: A. J. Boescke, T. R. Dawe, Thomas Dawe, John R. Dugan and M. C. Faulding. Their business is both wholesale and retail, and comprises a varied line, including Hardware, Farm Implements, Stoves, Sporting Goods, Glass, Rope, Plumbing Goods, &c. The store has lately been remodeled and is now referred to as a very attractive and convenient one.

Erastus S. Chesebro has purchased the interest of Joshua Haley in the Hardware firm of Chesebro & Haley, Stonington, Conn., and will continue under his own name.

W. S. Hubbard & Son have succeeded W. S. Hubbard in the retail Hardware, Stove, Farm Implement, Buggy and Harness business at Kirkland, Ind. Business during the past year is referred to as showing a good increase over 1898, while the stock has been materially increased in every department.

The oldest Hardware house in Roanoke, Va., is that of Nelson & Myers, who do both a wholesale and retail trade. The business is one of several originated by H. H. Myers of Lexington, Va., who began at the latter point in 1865. He opened the Roanoke branch in 1888, taking L. W. Nelson, who was then interested with him in a store at Culpeper, Va., as partner in the enterprise, Mr. Nelson to be the manager. The firm occupied their own building on Commerce street until February, 1898, when they moved to the present building, 17 Campbell street, erected to meet expanding trade. It is 25 x 125 feet, three stories, yet inadequate to contain the stock required by the business. At present another building is rented on Church street, but an addition 25 x 75 feet, of three stories will soon be put up at the rear of their main building. Business during 1899 was the best of any year in the history of the firm in both the wholesale and retail departments, and the outlook for the future is very promising.

Perrow, Evans & Co., who opened a Hardware store at 908 Main street, Lynchburg, Va., in January, 1899, have bought the Presbyterian Church on Main street, and expect to remodel and make it suitable for carrying on their business in the Spring. Dimensions of building will be 50 x 90 feet, three floors, giving space greatly in excess of that at their present location.

Harrington & Knight, Fargo, N. D., have dissolved partnership. Hubert Harrington will continue at the old stand.

J. W. Gilmore has succeeded Gilmore & Griffin, dealers in General Hardware, Farm Implements and Vehicles, Compton, Ill.

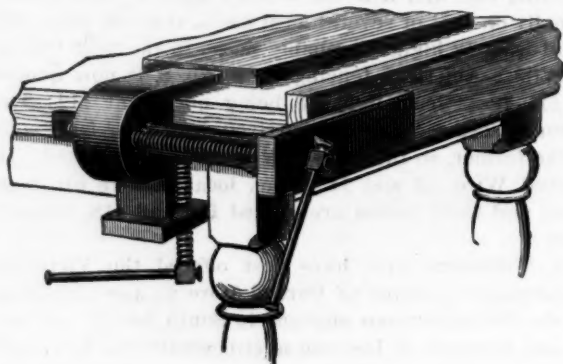
M. R. O'Neill, of Graceville, Minn., has bought the Hardware stock of Pritchard & Houstain, Fargo, N. D., and will take possession as soon as stock can be invoiced.

Clark W. Kelley, Devil's Lake, N. D., has sold out to J. Q. Adams.

The store of the Stewart Hardware Company, Fostoria, Ohio, was robbed on the 21st ult.

### Bench Hook and Vise.

Thomson Bros. & Co., Lowell, Mass., have brought out a convenient portable combined wood workers' bench hook and vise, as here shown. It can be expeditiously attached and adjusted to bench, table or horse, anywhere,

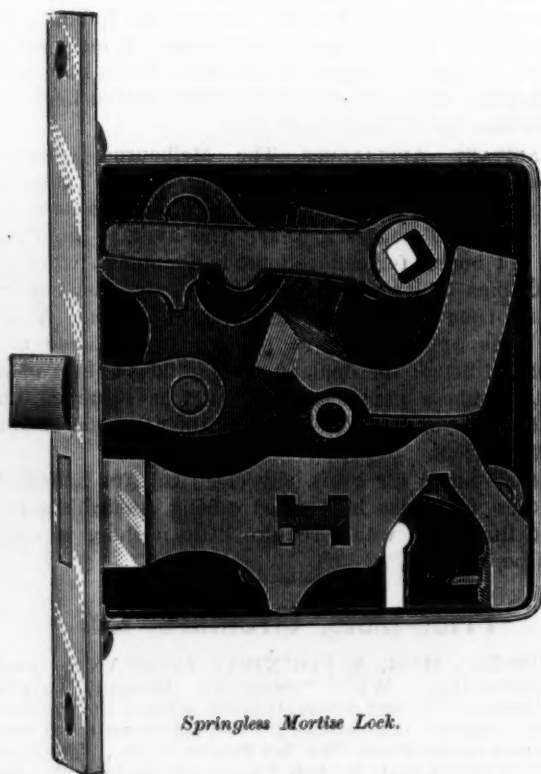


Wood Workers' Combined Bench Hook and Vise.

and being light in weight can be taken to work away from the shop and used for holding boards flat or on edge as seen in the engraving. Aside from professional use by the mechanic it is particularly suitable for gentlemen amateurs for odd jobs at home, where a work bench is not available.

### American Springless Lock.

The springless lock shown herewith is offered by the American Springless Lock Mfg. Company, 423 West Fifth street, Kansas City, Mo. The absence of all springs is an important feature of the lock, while it is



Springless Mortise Lock.

not liable to get out of order, it is stated, on account of its simplicity. The lock is manufactured at a price to compete with the locks which are operated by springs. The lock is furnished both in rim and mortise, the latter in different finishes and styles of trimmings. The manufacturers claim that it requires no special mechanical skill to put the locks on, that they do not get out of order and are exceedingly durable.



### An Automobile Bell.

The Bevin double chiming automobile bell herewith illustrated is put on the market by the Bevin Bros. Mfg. Company, East Hampton, Conn. The bell is especially designed for use on motor vehicles, and can be attached

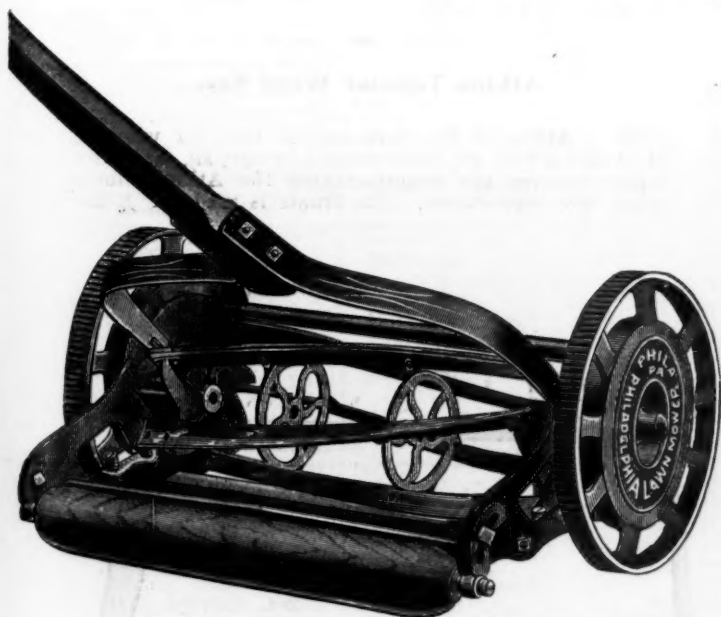


*An Automobile Bell.*

to any part of the vehicle most conveniently reached by the foot of the operator. It is explained that only a slight depression, about  $\frac{3}{8}$  inch, serves to ring the bell, and for each pressure two loud and distinctly different notes are produced in perfect harmony. The bell is referred to as simple, substantial and compact, with no loose parts to rattle. It is made in 5-inch size, with pure bell metal gongs, full nickel plated.

### The XX High Wheel Mower.

The Philadelphia Lawn Mower Company, Philadelphia, Pa., are placing on the market the five-blade,



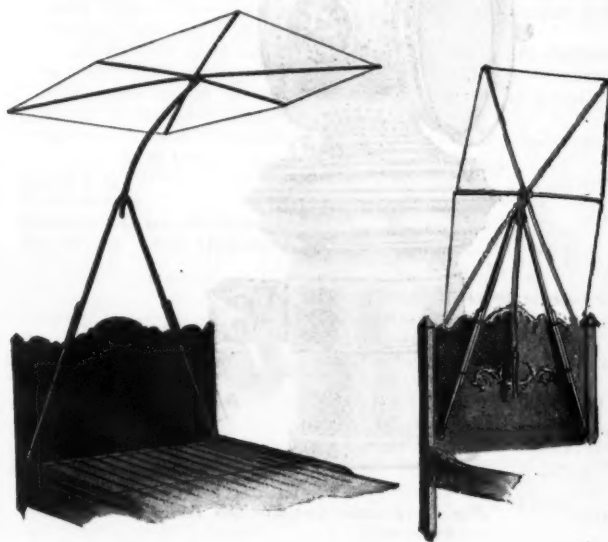
*The XX High Wheel Mower.*

12-inch wheel lawn mower, shown herewith. It has a 7-inch cylinder, single pinion, and is geared on both sides. The weight has been reduced by adopting steel side plates, which, it is explained, not only reduces the weight, but strengthens the mower in the parts where necessary. Its construction is such, it is pointed out, as to insure close cutting to the ground, and, it is stated, with the large diameter revolving cutter with five knives it is an easy cutter for high grass, when needed. The manufacturers claim that in this mower they have overcome the usual difficulties presented in making 12-inch machines. Among these is the difficulty of doing

good work owing to the grass being left ridgy or wavy on account of the large wheels covering the ground too rapidly; that of having too many knives, making the mower run hard, and being too heavy to use to advantage. The makers state that they have tested the machine thoroughly and have placed it on the market with the full assurance that it is one of the most valuable additions to their line. It is guaranteed by them in every respect. It is made in 16, 18, 20 and 22 inch sizes.

### Adjustable Canopy Support.

The accompanying cuts represent an adjustable canopy support, offered by I. E. Palmer, Middletown, Conn.



*Fig. 1.—Adjustable Canopy Support.*

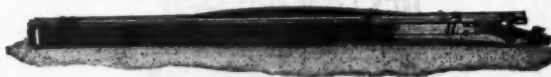
*Fig. 2.—Support Tipped Back.*

The support may stand upon the slats under the spring bed, between the spring bed and mattress, or upon the mattress, as in Fig. 1. In this way it is not in any way



*Fig. 3.—Support and Canopy.*

attached to the bedstead, and can be put up or taken down, it is stated, in less than two minutes. When attached to a bedstead, as in Fig. 2, sockets are screwed



*Fig. 4.—Support as Shipped.*

to the head board. The support may be lowered and tipped back against the wall or head board at will, as shown in Fig. 2. The support and canopy are shown complete in Fig. 3. For shipping or storing the support

is knocked down, as in Fig. 4. The manufacturer states that this support has many advantages not embodied in his former bedstead and standard fixtures.

### Banner Gas Lamp.

Plume & Atwood Mfg. Company, 29 Murray street, New York, have just brought out the Banner acetylene gas lamp for bicycles, carriages and automobiles, as here



Fig. 1.—Banner Acetylene Gas Lamp.

illustrated. It has a 3 inch lens,  $\frac{1}{4}$ -foot fish tail flame, dust proof burner and, it is said, cannot be overloaded with carbide. It is self controlled on smooth or rough

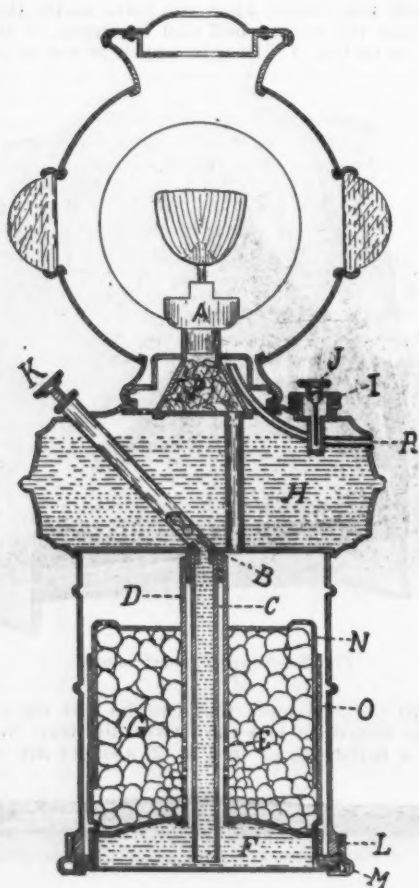


Fig. 2.—Sectional View of Lamp.

roads, has a patent bracket, which, once adjusted, makes it easy to remove or replace the lamp, which will burn from four to six hours.

### The Twin Bung Spout.

Middleton & Co., 215 North Second street, Philadelphia, are manufacturing the Twin bung spout, illustration of which is here given. The Twin bung spout, Fig. 1, consists of a single light iron casting in the form



Fig. 1.—The Twin Bung Spout.

of a double cone, the two ends of which are provided with outlets of  $1\frac{1}{4}$  inches and  $1\frac{1}{2}$  inches diameter, respectively. By means of their coarse external threads either end of the spout can be screwed into a bung hole of any size. The vents provided in the spout bear such relation to the diameters of its outlets that an unimpeded and continuous flow is secured. It is

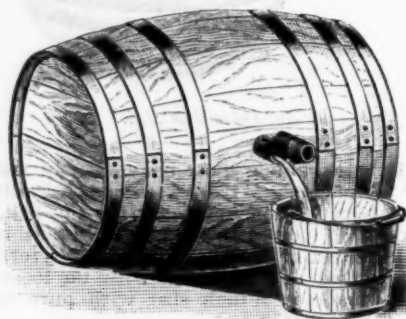
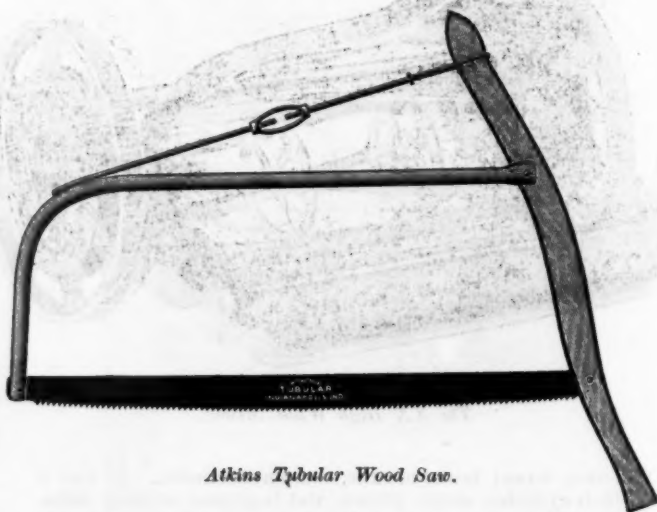


Fig. 2.—Twin Bung Spout in Use.

claimed that for the expeditious handling of paints, oils, syrups, and in general of liquids and semi-liquids the Twin spout, by reason of its simplicity, will be found to give excellent service.

### Atkins Tubular Wood Saw.

E. C. Atkins & Co., Indianapolis, Ind., for whom C. M. Avery & Co., 161 Lake street, Chicago, Ill., are direct representatives, are manufacturing the Atkins tubular wood saw here shown. The frame is made of  $\frac{3}{8}$ -inch



Atkins Tubular Wood Saw.

steel tubing of sufficient internal diameter to insure the right weight and balance, and yet secure great strength. The tube is japanned; the wood handle is vermilion in color, and the saw is referred to as a fine clock spring breasted blade.

T. O. Wilbern & Son have lately opened up at Sibley, Iowa, handling Shelf Hardware as well as Stoves and Tinware and Sporting Goods.



# Current Hardware Prices.

REVISED FEBRUARY 6, 1900.

**General Goods.**—In the following quotations General Goods—that is, those which are made by more than one manufacturer, are printed in *Italics*, and the prices named represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. They apply to such quantities of goods as are usually purchased by retail merchants. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

**Special Goods.**—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

**Cut Prices.**—In the present condition of the market, while many advanced prices are announced by the manufacturers, lower prices are often made by the wholesale trade who have stocks on hand purchased at former quotations.

**Names of Manufacturers.**—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE INDEX SUPPLEMENT (April 6, 1899), which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

**Standard Lists.**—A new edition of "Standard Hardware Lists" has been issued and contains the list prices of many leading goods.

**Additions and Corrections.**—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

## Adjusters Blind—

Domestic,  $\frac{1}{2}$  doz. \$3.00...33 $\frac{1}{2}$ @33 $\frac{1}{2}$ @10 $\frac{1}{2}$   
North's...10 $\frac{1}{2}$   
Zimmerman's—See Fasteners, Blind.

## Window Stop—

Ives' Patent...25 $\frac{1}{2}$ @  
Taplin's Perfection...50 $\frac{1}{2}$

## Ammunition—See Caps, Cartridges, Shells, &c.

## Anvils—American—

Eagle Anvils... $\frac{1}{2}$  doz. 7 $\frac{1}{2}$ @7 $\frac{1}{2}$ @  
Hay-Budden...9 $\frac{1}{2}$ @9 $\frac{1}{2}$ @  
Horsehoe brand, Wrought...9 $\frac{1}{2}$ @9 $\frac{1}{2}$ @  
Samson...7 $\frac{1}{2}$ @7 $\frac{1}{2}$ @  
Trenton, Wrought...8 $\frac{1}{2}$ @8 $\frac{1}{2}$ @

## Imported—

Armstrong's Mouse Hole...8 $\frac{1}{2}$ @9 $\frac{1}{2}$ @  
Peter Wright's...9 $\frac{1}{2}$ @9 $\frac{1}{2}$ @

## Anvil, Vise and Drill—

Millers Falls Co., \$18.00...20 $\frac{1}{2}$

## Apple Parers—See Parers, Apple, &c.

## Augers and Bits—

Common Double Spur...60 $\frac{1}{2}$ @10 $\frac{1}{2}$ @70 $\frac{1}{2}$   
Boring Machine Augers...60 $\frac{1}{2}$ @10 $\frac{1}{2}$ @70 $\frac{1}{2}$   
Car Bits, 12-in. twist...60 $\frac{1}{2}$ @10 $\frac{1}{2}$ @70 $\frac{1}{2}$   
Jennings' Pattern...60 $\frac{1}{2}$ @10 $\frac{1}{2}$ @70 $\frac{1}{2}$   
Auger Bits...60 $\frac{1}{2}$ @10 $\frac{1}{2}$ @70 $\frac{1}{2}$   
Ford's Auger and Car Bits...40 $\frac{1}{2}$ @10 $\frac{1}{2}$ @10 $\frac{1}{2}$   
Forster Pat. Auger Bits...25 $\frac{1}{2}$ @  
O. E. Jennings & Co., No. 10 ext. lip. R. Jennings' list...40 $\frac{1}{2}$ @10 $\frac{1}{2}$ @10 $\frac{1}{2}$   
No. 30, R. Jennings' list...50 $\frac{1}{2}$ @10 $\frac{1}{2}$ @60 $\frac{1}{2}$   
Russell Jennings'...55 $\frac{1}{2}$ @10 $\frac{1}{2}$ @60 $\frac{1}{2}$   
L'Hommedieu Car Bits...55 $\frac{1}{2}$ @10 $\frac{1}{2}$ @60 $\frac{1}{2}$   
Pugh's Black...30 $\frac{1}{2}$ @  
Pugh's Jennings' Pattern...35 $\frac{1}{2}$ @  
Snell's Auger Bits...60 $\frac{1}{2}$ @  
Snell's Bell Hangers' Bits...60 $\frac{1}{2}$ @  
Snell's Car Bits, 12-in. twist...60 $\frac{1}{2}$ @  
Wright's Jennings Bits (R. Jennings' list)...50 $\frac{1}{2}$ @

## Bit Stock Drills—

Standard List...65 $\frac{1}{2}$ @10 $\frac{1}{2}$ @70 $\frac{1}{2}$

## Expansive Bits—

Clark's small, \$18; large, \$26...50 $\frac{1}{2}$ @10 $\frac{1}{2}$ @  
Lavigne's Clark's Pattern, No. 1...50 $\frac{1}{2}$ @10 $\frac{1}{2}$ @  
doz. 226; No. 2, \$18...50 $\frac{1}{2}$ @10 $\frac{1}{2}$ @  
Steer's No. 1, \$26; No. 2, \$18...40 $\frac{1}{2}$ @10 $\frac{1}{2}$ @  
Swan's...60 $\frac{1}{2}$ @

## Gimlet Bits—

Common Double Cut, gro. \$2.75 @ \$3.25  
German Pattern...\$5.00 @ \$5.50  
Double Cut, makers' lists...50 $\frac{1}{2}$ @50 $\frac{1}{2}$ @10 $\frac{1}{2}$ @

## Hollow Augers—

Ames...25 $\frac{1}{2}$ @10 $\frac{1}{2}$ @  
Bonney's Adjustable,  $\frac{1}{2}$  doz...\$16.00  
New Patent...25 $\frac{1}{2}$ @10 $\frac{1}{2}$ @  
Universal...20 $\frac{1}{2}$ @

## Ship Augers and Bits—

Ford's...40 $\frac{1}{2}$ @  
Snell's...40 $\frac{1}{2}$ @  
L'Hommedieu's...15 $\frac{1}{2}$ @10 $\frac{1}{2}$ @10 $\frac{1}{2}$ @  
Watrous...40 $\frac{1}{2}$ @40 $\frac{1}{2}$ @

## Awl Hafts, See Hafts, Awl.

## Awls—

Brad Awls:  
Handled...gro. \$2.75 @ \$3.10  
Unhandl'd, Shouldered gro. \$3 @ \$6 $\frac{1}{2}$   
Unhandl'd, Patent...gro. 66 @ 70 $\frac{1}{2}$   
Peg Awls:  
Unhandl'd, Patent...gro. 51 @ 54 $\frac{1}{2}$   
Unhandl'd, Shouldered gro. 65 @ 70 $\frac{1}{2}$   
Scratch Awls:  
Handled, Common, gro. \$3.50 @ 4.00  
Handled, Socket...gro. \$11.50 @ 12.00  
Awl and Tool Sets—See Sets, Awl and Tool.

## Axes—

First Quality, best brands \$6.00 @ \$6.25  
First Quality, other brands \$5.50 @ \$5.75  
Jobbers' Special Brands:  
Good Quality...\$5.25 @ \$5.50  
Best Quality...\$5.00 @ \$5.50  
Cheap, Handled Axes...\$5.00 @ \$5.50  
Beveled, add 25c doz.

## Axle Grease—See Grease, Axle.

## Axles—

Concord, loose collar...6 $\frac{1}{2}$ c 6 c  
Concord, solid collar...6 $\frac{1}{2}$ c 6 c  
No. 1 Common...5 c 5 $\frac{1}{2}$ c  
No. 1 $\frac{1}{2}$  Com. New Style...5 $\frac{1}{2}$ c 5 $\frac{1}{2}$ c  
No. 2, Solid Collar...5 $\frac{1}{2}$ c 5 $\frac{1}{2}$ c  
Nos. 7, 8, 11 to 14...60 $\frac{1}{2}$ @10 $\frac{1}{2}$ @  
Nos. 15 to 18...60 $\frac{1}{2}$ @  
Nos. 19 to 22...60 $\frac{1}{2}$ @10 $\frac{1}{2}$ @  
25c cash 10 days.

## Boxes, Axle—

Common and Concord, not turned...lb. 5c  
Common and Concord, turned...lb. 6c  
Half Patent...lb. 9c

## Balances—

Caldwell new list...50 $\frac{1}{2}$ @  
Pollman's...62 $\frac{1}{2}$ @

## Spring—

Spring Balances...50 $\frac{1}{2}$ @50 $\frac{1}{2}$ @  
Chattillon's Light Spg. Balances...40 $\frac{1}{2}$ @  
Chattillon Straight Balances...40 $\frac{1}{2}$ @  
Chattillon Circular Balances...50 $\frac{1}{2}$ @  
Chattillon's Large D.al...80 $\frac{1}{2}$ @

## Barb Wire—See Wire, Barb.

## Bars—Crown—

Steel Crowbars, 10 to 40 lb., per lb...4 $\frac{1}{2}$ @4 $\frac{1}{2}$ @

## Beams, Scale—

Scale Beams, List Jan. 12, '99...30 $\frac{1}{2}$ @30 $\frac{1}{2}$ @  
Chattillon's No. 1...30 $\frac{1}{2}$ @  
Chattillon's No. 2...40 $\frac{1}{2}$ @

## Beaters—Egg—

Standard Co.:  
No. 5 Steel Handle Dover...\$6.50  
No. 10 Cast Handle Dover...\$8.00  
No. 10 Steel Handle Dover...\$8.00  
No. 15 Extra Heavy Steel Handle...\$15.00  
Rival,  $\frac{1}{2}$  gro...\$10.00  
Taplin Mfg. Co.:  
No. 50 Small Family size...\$6.50  
No. 100 Regular Family size...\$8.00  
No. 102 Regular Family size, tinned...\$9.50  
No. 150 Large Family size...\$15.00  
No. 152 Large Family size, tinned...\$17.00  
Lyon's Standard size...\$ doz. \$1.75  
Wonder (S. S. & Co.)...\$ gro. \$7.50

## Bellows—

Blacksmith—Standard List...70 $\frac{1}{2}$ @70 $\frac{1}{2}$ @

Inch...30 33 34 36 38 40  
Each...\$3.70 3.95 4.55 5.10 5.70 6.55  
Extra Length:  
Each...\$4.25 4.85 5.40 5.95 6.50 7.95

## Molders—

Inch...9 10 11 12 14 16  
Doz...\$6.75 7.25 8.50 9.50 12.00 14.50

## Hand—

Inch...6 7 8 9 10 12  
Doz...\$3.75 4.35 4.50 5.00 5.75 6.75

## Bells—Cow—

Ordinary goods...75 $\frac{1}{2}$ @10 $\frac{1}{2}$ @  
High grade...70 $\frac{1}{2}$ @70 $\frac{1}{2}$ @  
Jersey...75 $\frac{1}{2}$ @75 $\frac{1}{2}$ @  
Texas Star...50 $\frac{1}{2}$ @10 $\frac{1}{2}$ @

## Door—

Gong, Yankee...55 $\frac{1}{2}$ @  
Horne, R. & E. Mfg. Co.'s...50 $\frac{1}{2}$ @10 $\frac{1}{2}$ @  
Lever and Pull, Sargent's...38 $\frac{1}{2}$ @10 $\frac{1}{2}$ @

## Hand—

Hand Bells, Polished...65 $\frac{1}{2}$ @65 $\frac{1}{2}$ @  
White Metal...65 $\frac{1}{2}$ @65 $\frac{1}{2}$ @  
Nickel Plated...50 $\frac{1}{2}$ @50 $\frac{1}{2}$ @  
Swiss...60 $\frac{1}{2}$ @60 $\frac{1}{2}$ @

## Miscellaneous—

Farm Bells...lb. 2 @ 2 $\frac{1}{2}$ @  
Steel Alloy Church and School...50 $\frac{1}{2}$ @10 $\frac{1}{2}$ @  
Wilmot & Hobbs Mfg. Co., Gongs...70 $\frac{1}{2}$ @

## Belting

Common Standard...70 $\frac{1}{2}$ @10 $\frac{1}{2}$ @75 $\frac{1}{2}$ @  
Standard...60 $\frac{1}{2}$ @10 $\frac{1}{2}$ @70 $\frac{1}{2}$ @  
Extra...60 $\frac{1}{2}$ @60 $\frac{1}{2}$ @10 $\frac{1}{2}$ @  
High Grade...60 $\frac{1}{2}$ @60 $\frac{1}{2}$ @10 $\frac{1}{2}$ @

## Leather—

Extra Heavy, Short Lap...50 $\frac{1}{2}$ @10 $\frac{1}{2}$ @50 $\frac{1}{2}$ @  
Regular Short Lap...60 $\frac{1}{2}$ @10 $\frac{1}{2}$ @50 $\frac{1}{2}$ @  
Standard...60 $\frac{1}{2}$ @10 $\frac{1}{2}$ @50 $\frac{1}{2}$ @  
Light Standard...70 $\frac{1}{2}$ @

## Rubber—

Common Standard...70 $\frac{1}{2}$ @10 $\frac{1}{2}$ @75 $\frac{1}{2}$ @  
Standard...60 $\frac{1}{2}$ @10 $\frac{1}{2}$ @70 $\frac{1}{2}$ @  
Extra...60 $\frac{1}{2}$ @60 $\frac{1}{2}$ @10 $\frac{1}{2}$ @  
High Grade...60 $\frac{1}{2}$ @60 $\frac{1}{2}$ @10 $\frac{1}{2}$ @

## Cotton—

Rosendale-Reddaway B. & H. Co.:  
Sphinx Brand...60 $\frac{1}{2}$ @10 $\frac{1}{2}$ @  
Durable Brand...70 $\frac{1}{2}$ @

## Bench Stops—See Stops, Bench

## Benders and Upsetters, Tire—

Green River Tire Benders and Upsetters...20 $\frac{1}{2}$ @  
Ill. Iron & Bolt Co...40 $\frac{1}{2}$ @40 $\frac{1}{2}$ @  
Stoddard's Lightning Tire Upsetters...40 $\frac{1}{2}$ @50 $\frac{1}{2}$ @

## Bicycle Goods—

Lane's Cycle Hanger...33 $\frac{1}{2}$ @35 $\frac{1}{2}$ @  
John S. Lang's Son's 1899 list:  
Chain...50 $\frac{1}{2}$ @  
Parts...50 $\frac{1}{2}$ @  
Spokes...50 $\frac{1}{2}$ @  
Tubes...60 $\frac{1}{2}$ @

## Bits—

Auger, Gimlet, Bit Stock Drills, &c.—See Augers and Bits.

## Bit Holders—See Holders.

## Blind Adjusters—See Adjusters, Blind.

## Blind Fasteners—See Fasteners, Blind.

## Blind Staples—See Staples, Blind.

## Blocks—Tackle—

Common Wooden...70 $\frac{1}{2}$ @70 $\frac{1}{2}$ @10 $\frac{1}{2}$ @  
Eddy's steel...60 $\frac{1}{2}$ @10 $\frac{1}{2}$ @  
Harris Steel...50 $\frac{1}{2}$ @10 $\frac{1}{2}$ @  
Ford's Star Brand Self Lubricating...60 $\frac{1}{2}$ @10 $\frac{1}{2}$ @  
Hollow Steel, Ford's Pat. Star Brand...50 $\frac{1}{2}$ @10 $\frac{1}{2}$ @  
Lane's Patent Automatic Lock and Junior...30 $\frac{1}{2}$ @  
Stowell's Novelty, Mal. Iron...50 $\frac{1}{2}$ @  
See also Machines, Hoisting.

## Boards, Stove—

1899 List:  
Zinc...30 $\frac{1}{2}$ @  
Crystal and Embossed...40 $\frac{1}{2}$ @

## Boils—

Carriage, Machine, &c.—Common list Jan. 30, '95...45 $\frac{1}{2}$ @50 $\frac{1}{2}$ @10 $\frac{1}{2}$ @  
Norway Iron, \$3.00, list Oct. 7, '94...75 $\frac{1}{2}$ @75 $\frac{1}{2}$ @10 $\frac{1}{2}$ @  
Phila. Eagle, \$3.00 list...75 $\frac{1}{2}$ @10 $\frac{1}{2}$ @75 $\frac{1}{2}$ @10 $\frac{1}{2}$ @

## Bolt Ends, list Jan. 30, '95...50 $\frac{1}{2}$ @50 $\frac{1}{2}$ @10 $\frac{1}{2}$ @

## Machine, list Oct. 1, '99...50 $\frac{1}{2}$ @50 $\frac{1}{2}$ @10 $\frac{1}{2}$ @

## NOTE.—Jobbers' prices on Bolts are now generally lower than manufacturers'.

## Door and Shutter—

## Cast Iron Barrel, Round Brass Knob:

Inch...3 4 5 6 8  
Per doz...\$0.55 .56 .45 .57 .80

## Cast Iron Spring Foot:

Inch...6 8 10  
Per doz...\$1.00 1.25 1.75

## Cast Iron Chain, Flat, Japanned:

Inch...6 8 10  
Per doz...\$0.85 1.20 1.50

## Cast Iron Shutter, Brass Knobs:

Inch...6 8 10  
Per doz...\$0.60 .90 1.15

## Wrought Barrel Brass Knob:

Inch...3 4 5 6 8  
Per doz...\$0.44 .50 .61 .70 1.23

## Wrought Barrel...70 $\frac{1}{2}$ @10 $\frac{1}{2}$ @75 $\frac{1}{2}$ @

## Wrought...Bronzed...40 $\frac{1}{2}$ @50 $\frac{1}{2}$ @10 $\frac{1}{2}$ @

## Wrought Flush, B. K...50 $\frac{1}{2}$ @10 $\frac{1}{2}$ @60 $\frac{1}{2}$ @

## Wrought Shutter...40 $\frac{1}{2}$ @10 $\frac{1}{2}$ @60 $\frac{1}{2}$ @

## Wrought Square Neck...50 $\frac{1}{2}$ @10 $\frac{1}{2}$ @60 $\frac{1}{2}$ @

## Wrought Sunk...50 $\frac{1}{2}$ @10 $\frac{1}{2}$ @60 $\frac{1}{2}$ @

## Ives' Patent Door...42 $\frac{1}{2}$ @62 $\frac{1}{2}$ @10 $\frac{1}{2}$ @

## Stove and Plover—

Flow...50 $\frac{1}{2}$ @10 $\frac{1}{2}$ @60 $\frac{1}{2}$ @  
Stove...60 $\frac{1}{2}$ @60 $\frac{1}{2}$ @

## Tire—

Common...57 $\frac{1}{2}$ @57 $\frac{1}{2}$ @10 $\frac{1}{2}$ @  
American Sewing Company...70 $\frac{1}{2}$ @  
Norway Phila., list Oct. 16, '84...70 $\frac{1}{2}$ @  
Eagle Phila., list Oct. 16, '84...72 $\frac{1}{2}$ @  
Bay State, list Feb. 28, '83...57 $\frac{1}{2}$ @  
Franklin Moore Co.:  
Norway Phila., list Oct. 16, '84...70 $\frac{1}{2}$ @  
Eagle Phila., list Oct. 16, '84...72 $\frac{1}{2}$ @  
Eclipse, list Feb. 28, '83...57 $\frac{1}{2}$ @  
Port Chester Bolt & Nut Company  
Empire, list Feb. 28, '83...67 $\frac{1}{2}$ @  
Keystone Phila., list Oct. '84...72 $\frac{1}{2}$ @  
Norway Phila., list Oct. '84...70 $\frac{1}{2}$ @

## Borers, Tap—

Borers Tap, Ring, with Handle:

Inch...1 $\frac{1}{2}$  1 $\frac{3}{4}$  1 $\frac{1}{2}$  1 $\frac{3}{4}$  2

Per doz...\$3.50 4.50 5.00 6.50

Inch...2 $\frac{1}{2}$  3 $\frac{1}{2}$  4 $\frac{1}{2}$  5 $\frac{1}{2}$  6 $\frac{1}{2}$

Per Doz...\$7.50 10.25

Enterprise Mfg. Co., No. 1, \$1.25; No. 2, \$1.65; No. 3, \$2.50 each...25 $\frac{1}{2}$ @30 $\frac{1}{2}$ @

## Boring Machines—See Machines, Boring.

## Boxes, Mitre—

Seavey's, per doz...\$30...40 $\frac{1}{2}$ @

## Braces—

NOTE.—Most Braces are sold at net prices.

Common Ball, American...\$1.10 @ \$1.20

Barber's...50 $\frac{1}{2}$ @10 $\frac{1}{2}$ @60 $\frac{1}{2}$ @10 $\frac{1}{2}$ @

Fray's Genuine Spofford's...50 $\frac{1}{2}$ @10 $\frac{1}{2}$ @5 $\frac{1}{2}$ @

Fray's No. 70 to 120, 81 to 123, 207 to 414...50 $\frac{1}{2}$ @10 $\frac{1}{2}$ @5 $\frac{1}{2}$ @

F. S. & W. Co., Peck's Patent...50 $\frac{1}{2}$ @10 $\frac{1}{2}$ @60 $\frac{1}{2}$ @

## Brackets—

Cast Iron, plain...60 $\frac{1}{2}$ @10 $\frac{1}{2}$ @70 $\frac{1}{2}$ @10 $\frac{1}{2}$ @

B. L. Caps (Sturtevant Shells) \$1.00  
All other primers \$1.10 @ \$1.15

### Carpet Stretchers—

See Stretchers, Carpet.

### Cartridges—

B. B. Caps, Con., Ball Sngd. \$1.90  
B. B. Caps, Round Ball \$1.15 @ \$1.18  
Blank Cartridges:  
38 C. F., \$5.50 10¢ @ 5¢  
38 C. F., \$7.00 10¢ @ 5¢  
38 cal. Rim, \$1.50 10¢ @ 5¢  
38 cal. Rim, \$2.75 10¢ @ 5¢  
Central Fire 25¢  
Pistol and Rifle 15¢ @ 5¢  
Primed Snells and Bullets 15¢ @ 5¢  
Rim Fire Sporting 60¢  
Rim Fire, Military 15¢ @ 5¢

### Casters—

Red 60¢ @ 10¢  
Flat 60¢ @ 10¢  
Plate, port. Brass 60¢ @ 10¢  
Philadelphia 60¢ @ 10¢  
Boss 70¢ @ 10¢  
Post anti-friction 70¢ @ 10¢  
Martin's Patent (Phoenix) 45¢  
Payson's Anti-friction Furniture 70¢ @ 10¢  
Payson's Anti-friction Truck 70¢ @ 10¢  
Standard Ball Bearing 45¢  
Tucker's Patent, low list 80¢

### Cattle Leaders—

See Leaders, Cattle.

### Chain—

American Coll. Full Casks:  
8-16 1/4 5-16 3/4 7-16 1/2 9-16 1/2  
8-75 8-85 8-85 8-90 8-95 8-100 8-105  
1/4 1/2 1 inch.  
4-55 4-60 4-65 4-70 cents per lb.  
Less than Cask lots add 1/4¢ per lb.  
German Coll. list July 24, '97  
60¢ @ 10¢ @ 60¢ @ 10¢  
German Hatter Chain, list July 24, '97  
60¢ @ 10¢ @ 60¢ @ 10¢  
Trace, Wagon and Fancy Chains,  
list April, '98 60¢ @ 10¢ @ 60¢ @ 10¢  
Jack Chain, list July 10, '98:

Iron 60¢ @ 5¢ @ 60¢ @ 5¢  
Brass 60¢ @ 5¢ @ 60¢ @ 5¢  
Gal. Pump Chain 1/2 lb. 5/4¢ @ 5¢  
Breast, Hitching and Rein Chains  
Covert Mfg. Co.:  
Breast 35¢ @ 25¢  
Halter 35¢ @ 25¢  
Heel 35¢ @ 25¢  
Klein 35¢ @ 25¢  
Stallion 35¢ @ 25¢  
Oneda Community:  
Eureka Coll and Halter 60¢ @ 60¢ @ 5¢  
Niagara Coll and Halter 60¢ @ 60¢ @ 5¢  
Niagara Cow Ties 45¢ @ 45¢ @ 10¢ @ 5¢  
Am. Coll and Halters 50¢ @ 10¢ @ 5¢ @ 5¢  
Am. Cow Ties 55¢ @ 40¢ @ 5¢  
Wire Goods Co.:  
Dog Chain 60¢  
Universal Dog-joined Chain 45¢

### Chalk—(From Jobbers.)

Carpenters', Blue gro. 45¢  
Carpenters', Red gro. 35¢  
Carpenters', White gro. 30¢  
See also Crayons.

### Chalk Lines—See Lines.

### Checks, Door—

Bardley's 40¢ @ 10¢  
Columbia 50¢ @ 10¢  
Eclipse 60¢ @ 60¢ @ 10¢

### Chisels—

Socket Framing and Firmer  
Standard List 70¢ @ 70¢ @ 10¢ @ 5¢  
Buck Bros. 30¢  
Charles Buck 30¢  
Swan's 70¢ @ 10¢ @ 2¢ @ 5¢  
L. & J. White 30¢ @ 30¢ @ 5¢

### Tanged—

Tanged Firmers 40¢ @ 5¢ @ 40¢ @ 10¢  
Buck Bros. 30¢  
Charles Buck 30¢  
L. & J. White, Tanged 35¢ @ 5¢

### Cold—

Cold Chisels, good quality, lb. 14¢ @ 16¢  
Cold Chisels, fair quality 12¢ @ 10¢  
Cold Chisels, ordinary 8¢ @ 9¢

### Chucks—

Beach Pak, each \$2.00 20¢  
Skinner Patent Chucks 40¢  
Combination Lathe Chucks 40¢  
Drill Chucks, Patent and Standard 30¢  
Drill Chucks, New Model 2¢  
Independent Lathe Chucks 40¢  
Improved Planer Chucks 30¢  
Universal Lathe Chucks 40¢  
Face Plate Jaws 35¢  
Union Mfg. Co.:  
Combination 40¢  
Gear Drill 30¢  
Geared Scroll 30¢  
Independent 40¢  
Union Drill 40¢  
Universal 40¢  
Face Plate Jaws 35¢

### Clamps—

Adjustable, Hammers' 20¢ @ 20¢ @ 5¢  
Adjustable, Stearns' 30¢  
Cabinet, Sargent's 45¢ @ 10¢  
Carriage Makers', P. S. & W. Co. 40¢ @ 10¢  
Carriage Makers', Sargent's 40¢ @ 10¢  
Bes-v. Parallel 33¢ @ 10¢  
Lineman's, Udo's Drop Forge & Tool Co. 40¢  
Saw Clamps, see Vices, Saw Filers.

### Cleaners, Walk—

Star Socket, All Steel 7¢ @ 40¢ net  
Star Shank, All Steel 7¢ @ 40¢ net

### Cleavers, Butchers—

Foster Bros. 30¢  
New Haven Edge Tool Co. 40¢ @ 40¢ @ 5¢  
Nichols Bros. Flat hdl., 30¢; Rd. hdl., 40¢  
Fayette R. Plumb 45¢  
P. S. & W. 30¢ @ 30¢ @ 5¢ @ 10¢  
L. J. White 35¢

### Clippers—

Chicago Flexible Shaft Company  
Handy Toilet 7¢ @ 70¢

Mascotte Toilet 7¢ @ 40¢  
Monitor Toilet 7¢ @ 40¢  
Stewart's Patent 7¢ @ 40¢

### Clips, Axle—

Eagle and Superior 1/4 and 5-16 inch 65¢ @ 10¢ @ 70¢  
Norway, 1/4 and 5-16 inch 65¢ @ 10¢ @ 70¢

### Cloth and Netting, Wire—

See Wire, &c.

### Cocks, Brass—

Hardware list (Globe, Kerosene, Lever Bibbs, Racking, &c.) 60¢ @ 10¢ @ 60¢ @ 10¢

### Coffee Mills—See Mills, Coffee.

### Collars Dog—

Brass, Pope & Stevens' list 40¢  
Embossed, Gilt, Pope & Stevens' list 30¢ @ 10¢  
Leather, Pope & Stevens' list 40¢

### Compasses, Dividers, &c.

Ordinary Goods 70¢ @ 10¢ @ 75¢  
Bemis & Call Hdw. & Tool Co.:  
Dividers 65¢  
Callipers, Call's Patent Inside 65¢  
Callipers, Double 65¢  
Callipers, Inside or Outside 65¢  
Callipers, W.T. 60¢  
Compasses 60¢  
J. Stevens A. & T. Co. 35¢ @ 10¢

### Conductor Pipe, Galvanized—

Territory. Carload. L. C. L.  
Eastern 60¢ @ 25¢ @ 5¢  
Central 60¢ @ 25¢ @ 5¢  
Southern 60¢ @ 25¢ @ 5¢  
S. Western 60¢ @ 25¢ @ 5¢  
Terms, 2¢ for cash.  
See also Eave Trough.

### Coolers, Water—

S. S. & Co.: 2-gal. \$14.00; 8-gal. \$16.00; 4-gal. \$18.50; 6-gal. \$23.00.

### Coopers' Tools—

See Tools, Coopers'.

### Cord—Sash—

Braided, Drab 1/2 lb. 22¢ @ 15¢  
Braided, White, Common 1/2 lb. 18¢ @ 15¢  
Cable Laid Italian 1/2 lb. 18¢; 1/4 lb. 18¢  
Common India 1/2 lb. 8¢ @ 9¢ @ 5¢  
Cotton Sash Cord, Twisted 1/2 lb. 12¢ @ 15¢  
Patent Russia 1/2 lb. 12¢ @ 15¢  
Cable Laid Russia 1/2 lb. 15¢ @ 14¢  
India Hemp, Braided 1/2 lb. 14¢ @ 15¢  
India Hemp 1/2 lb. 10¢ @ 12¢  
Patent India 1/2 lb. 10¢ @ 12¢  
Pearl Braided, cotton 1/2 lb. 18¢ @ 18¢  
Massachusetts, White 1/2 lb. 22¢  
Massachusetts, Drab 1/2 lb. 24¢  
Eddystone Braided Cotton 1/2 lb. 18¢  
Harmony Cable Laid Italian 1/2 lb. 18¢  
Ossawa Mills:  
Crown, Solid Braided White 1/2 lb. 18¢  
Braided, Giant, White 1/2 lb. 17¢  
Peelers:  
Cable Laid Italian 1/2 lb. 14¢  
Cable Laid Russian 1/2 lb. 12¢  
Cable Laid India 1/2 lb. 12¢  
Braided India 1/2 lb. 18¢  
Phoenix, White 1/2 lb. 18¢  
Samson:  
Braided, Drab Cotton 1/2 lb. 31¢  
Braided, Italian Hemp 1/2 lb. 31¢  
Braided, Linen 1/2 lb. 44¢  
Braided, White Cotton, Spot 1/2 lb. 27¢  
Silver Lake:  
A quality, Drab, 40¢ 15¢  
A quality, White, 55¢ 15¢  
B quality, Drab, 35¢ 15¢  
B quality, White, 30¢ 15¢  
Italian Hemp, 40¢ 15¢  
Linen, 57¢ 15¢

### Wire, Picture—

Braided or Twisted 70¢ @ 70¢ @ 5¢

### Corn Knives and Cutters—

See Knives, Corn.

### Crackers, Nut—

Little -tant 7¢ @ 24¢  
Turner & Seymour Mfg. Co. 50¢

### Cradles—

Grain 50¢

### Crayons—

White Round Crayons, gross 5¢ @ 6¢  
Cases, 100 gro., \$4.50 @ \$5.00, at factory.  
Metal Workers' Crayons, gr. \$2.50  
Soapstone Pencils, round, flat or square 1¢ @ 15¢  
Rolling Mill Crayons, gr. \$2.50  
Railroad Crayons (composition) 1¢ @ 15¢  
See also Chalk.

### Creamery Pails—See Pails.

### Crooks, Shepherds—

Fort Madison, Heavy 7¢ @ 70¢  
Fort Madison, Light 7¢ @ 65¢

### Crow Bars—See Bars, Crow.

### Cultivators—

Victor Garden 7¢ @ 10¢

### Cutters—

Glass—  
Smith & Hemmway Co. 30¢

### Meat—

American 30¢  
Nos. 1 3 4 5  
Each \$5 \$7 \$10 \$25 \$50 \$80  
Connecticut:  
N. J. 0 1 8 10 12  
each \$1.75 2.25 3.00 4.00 5.50  
Enterprise 25¢ @ 25¢ @ 75¢  
Nos. 1 2 3 4 5  
Each \$2 \$3 \$5 \$10 \$15  
Dixon's 7¢ @ 10¢  
Nos. 1 2 3 4  
\$14.00 \$17.00 \$19.00 \$30.00  
Hale's 7¢ @ 10¢ @ 10¢ @ 70¢  
Nos. 1 2 3 4 5  
\$27.00 \$32.00 \$35.00 \$45.00  
Home No. 1, 7¢ @ 28.00 60¢  
Little Giant, 7¢ @ 30¢ @ 35¢ @ 55¢  
Nos. 305 310 319 340 399  
\$35.00 \$48.00 \$44.00 \$75.00 \$68.00

Miles' Challenge, 7¢ @ 45¢ @ 10¢  
Nos. 1 2 3  
\$22.00 \$30.00 \$40.00  
New Triumph No. 605, 7¢ @ 24.00

Woodruff's, 7¢ @ 100 150  
Nos. 100 150

Chadborn's Smoked Beef Cutter, 7¢ @ 15.00

Enterprise Beef Shavers 25¢ @ 30¢

### Slaw and Kraut—

Henry Dies' on & Son's:  
Slaw, C. in Grater, &c. 40¢  
Kraut Cutters 24 x 7, 26 x 8, 30 x 9, 35¢  
Kraut Cutters 36 x 12, 40 x 12 40¢

Tucker & Dorsey Mfg. Co.:  
Kraut Cutters 40¢  
Slaw Cutters, 1 Knife, 7 gr. \$15 @ 20¢  
Slaw Cutters, 2 Knife, 7 gr. \$22 @ 36¢

### Tobacco—

All Iron, Cheap 45¢ @ 45¢ @ 10¢  
Enterprise 35¢ @ 30¢  
National, 7¢ @ 21.00 40¢  
Sargent's, 7¢ @ 24.00 60¢ @ 60¢ @ 10¢

### Washer—

Appleton's, 7¢ @ 16.00 60¢ @ 10¢ @ 60¢ @ 10¢  
Bonney's 7¢ @ 4.75

### Diggers, Post Hole, &c.—

Dalbey 1" at Hole Auger, per doz. \$10.00  
Iwan's Improved Post Hole Auger 40¢  
Iwan's Perfection Post Hole Digger 40¢

Never-Break Post Hole Diggers, 7¢ @ 24.00

Samson, 7¢ @ 34.00 60¢

### Dividers—See Compasses.

### Dog Collars—See Collars, Dog.

### Door Checks—

See Checks, Door.

### Door Springs—

See Springs, Door.

### Drawers, Money—

Tucker's Pat. Alarm Till No. 1, 7¢ @ 18; No. 2, \$15; No. 3, \$14; No. 4, \$18.

### Drawing Knives—

See Knives, Drawing.

### Drills and Drill Stocks—

Common Blacksmiths' Drill, each \$1.75 @ \$2.00

### Blacksmiths' Self-feeding, each \$5.75 @ 1.00

Bench Drills, Stearns' 50¢  
Breast, Millers Falls, each \$3.00 15¢ @ 10¢  
Breast, P. S. & W. 30¢ @ 30¢ @ 10¢  
Goodell Automatic Drills, 40¢ @ 50¢ @ 10¢  
Ratchet, Curtis & Curtis 25¢  
Ratchet, Parker's 40¢  
Ratchet, Weston's 20¢ @ 25¢  
Ratchet, Whitney's P. S. & W. 40¢ @ 10¢  
Whitney's Hand Drill, No. 1, \$10.00  
Adjustable, No. 10, \$12.00 35¢ @ 5¢

### Twist Drills—

Standard List 65¢ @ 65¢ @ 10¢

### Drill Bits or Bit Stock

Drills—See Augers and Bits.

### Drill Chucks—See Chucks.

### Dripping Pans—

See Pans, Dripping.

### Drivers, Screw—

Balsley's Screw Holder and Driver, 7¢ @ 24¢  
2 1/2 inch, \$8; 4 in., \$7.50 6 in., \$9.40¢  
Buck Bros. 30¢  
Buck Bros' Screw Driver Bits 27¢ @ 10¢  
Champion 40¢ @ 10¢  
Douglass Mfg. Co. 20¢ @ 30¢ @ 10¢  
Fray's Hol. Hole Sets, No. 3, \$12.00 50¢  
Gay & Parsons' Ratchet 35¢  
Goodell's Automatic 50¢ @ 10¢ @ 50¢ @ 10¢ @ 55¢  
Mayhew's Black Handle 50¢  
Mayhew's Monarch 45¢ @ 10¢  
New England Specialty Co. 50¢ @ 10¢  
Sargent & Co.'s:  
Nos. 10, 20, 35 and 40 65¢ @ 65¢ @ 10¢  
Screw Driver Bits 7¢ @ 50¢ @ 70¢  
Stanley's R. & L. Co.'s:  
No. 64, Varnished Handles 60¢ @ 10¢  
No. 86 70¢ @ 10¢  
Swan's:  
Nos. 45 to 63 50¢  
No. 40 40¢ @ 10¢  
Nos. 25, 35 and 45 20¢ @ 10¢ @ 10¢

### Eave Trough, Galvanized

Territory. Carload. L. C. L.  
Eastern 75¢ @ 15¢ 75¢ @ 10¢  
Central 75¢ @ 15¢ 75¢ @ 7¢ @ 5¢  
Southern 75¢ @ 10¢ 75¢ @ 5¢  
S. Western 75¢ @ 2¢ @ 5¢ 75¢  
Terms, 2¢ for cash.  
See also Conductor Pipe.

### Egg Beaters—See Beaters, Egg.

### Egg Openers—

See Openers, Egg.

### Emery—Nos. 1 to 5 to Flour, CF

46 gro. 1.80 gro. F.F.F.

Kegs 1/2 lb. 4¢ 5 c 5 c  
1/4 Kegs 1/2 lb. 4¢ 5 c 5 c  
10 lb cans, 10 c 5 c 5 c  
10 lb cans, less than 10 10 c 10 c 8 c

### Enameled and Tinned Ware—See Ware, Hollow.

### Escutcheon Pins—

See Pins, Escutcheon.

### Extractors, Lemon Juice—

See Squeezers, Lemon.

### Fasteners, Blind—

Zimmerman's 50¢ @ 10¢

### Faucets—

Cork Lined 70¢ @ 5¢ @ 70¢ @ 10¢ @ 5¢  
Metallic Key, Leather Lined 70¢ @ 70¢ @ 5¢

Red Cedar 50¢ @ 50¢ @ 5¢

B. & L. B. Co.:  
West's Lock, Open and Shut Key 50¢ @ 10¢  
John Sommer's Peerless Tin Key 40¢  
John Sommer's Boss Tin Key 50¢  
John Sommer's Victor Metal Key 50¢ @ 10¢  
John Sommer's Duplex Metal Key 50¢  
John Sommer's Diamond Lock 40¢  
John Sommer's L. X. L. Cork Lined 40¢  
John Sommer's Reliable Cork Lined 50¢ @ 10¢

John Sommer's Common Cork Lined 70¢  
John Sommer's Chicago Cork Lined 60¢  
John Sommer's O. K. Cork Lined 50¢  
John Sommer's Perfection Cedar 40¢  
Star, Metal Plug new, reduced list 60¢ @ 10¢  
Lockport, Metal Plug, reduced list 60¢ @ 5¢

### Self Measuring:

Enterprise, 7¢ @ 36.00 40¢  
Lane's, 7¢ @ 36.00 35¢  
National Measuring, 7¢ @ 36.00 40¢

### Felloe Plates—

See Plates, Felloe.

### Files—Domestic—

List revised Nov. 1, 1899.

Best Brands 70¢ @ 75¢  
Good Brands 75¢ @ 75¢ @ 10¢ @ 5¢  
Fair Brands 75¢ @ 10¢ @ 80¢ @ 5¢  
Second Quality 80¢ @ 10¢ @ 80¢ @ 5¢

### Imported—

Stubs' Tapers, Stubs' list, July 21, '97 55¢

### Fixtures, Grindstone—

Net Prices:  
Inch 15 17 19 21 25  
Per doz. \$3.30 3.55 3.75 4.50 5.25

Stowell's Giant Grindstone Hanger 7¢ @ 10¢

Stowell's Grindstone Fixtures 50¢  
P. S. & W. Co. 50¢ @ 10¢ @ 10¢  
Reading Hardware Co. 30¢ @ 20¢ @ 10¢  
Sargent's Patent 60¢ @ 10¢ @ 60¢ @ 10¢ @ 5¢

### Fluting Machines—

See Machines, Fluting.

### Fodder Squeezers—

See Squeezers, Fodder.

### Forks—

Aug. 1, 1899, list.  
Hay, 2 tins 65¢  
Hay, 3 tins 65¢ @ 5¢  
Manure, 4 tins 70¢  
Manure, 5 and 6 tins 70¢  
Spading 70¢ @ 5¢

Iowa Dig-Easy Potato 65¢  
Victor, Hay 70¢  
Victor, Manure 70¢ @ 5¢  
Victor, Header 70¢ @ 10¢  
Champion, Hay 60¢ @ 5¢  
Champion, Manure 70¢ @ 5¢  
Columbia, Hay 65¢ @ 5¢  
Columbia, Manure 70¢  
Columbia, Spading 70¢  
Hawkeye Wood Barley 4 tins 7¢ @ 5¢  
\$5.00; 6 tins, \$6.00.  
Plated—See Spoons.

### Frames—

Saw—

Red, Polished and Varnished, doz. \$1.15 @ 1.30



**Gimlets—**

Nail, Metal, Assorted, gro. \$1.40@1.75  
Spike, Metal, Assorted, gro. \$3.00@5.50  
Nail, Wood Handled, Assorted,  
gro. \$4.00@4.50  
Spike, Wood Handled, Assorted,  
gro. \$5.00@5.50

**Glass, American Window**

List Nov. 18, 1898.

Small lots from store:  
Single or Double.  
Eastern, First Bracket. . . . .85¢10¢  
Eastern, All Other Brackets. . . . .85¢10¢  
From Jobbers or Factory, with Freight  
Allowance, except in Eastern district:  
Carloads, Single Strength.  
First Bracket. . . . .85¢25¢  
Second, Third and Fourth Brackets. . . . .90¢  
Fifth Bracket and Above. . . . .90¢25¢  
Carloads, Double Strength  
First Five Brackets. . . . .89¢  
Sixth Bracket and Above. . . . .90¢10¢10¢

**Glue—Liquid, Fish—**

List A, Bottles or Cans, with Brush.

List B, Cans (½ pts., pts., qts.). . . . .87½¢50¢

List C, Cans (½ gal., gal.). . . . .85¢45¢

**Glue Pots—See Pots, Glue.****Grease, Axle—**

Common Grade. . . . .gro. \$5.00@6.00

Alerton's Axle:  
1 lb. Tins, ½ gr. . . . .\$9.001 lb. Tins, ½ doz., \$2.00; 5 lb. \$3.00;  
10 lb. \$6.00.

25 lb. wood pails. . . . .½ doz. \$12.00

Dixon's Everlasting. . . . .10-lb. pails, ea. 55¢

Dixon's Everlasting, in bxs. . . . .½ doz. 1 lb. \$1.20; 2 lb. \$2.00

**Grindstone Fixtures—**

See Fixtures, Grindstone.

**Gun Powder—See Powder.****Hack Saws—See Saws.****Hafis, Awi—**

Peg Patent, Leather Top. . . . .gro. \$4.50@5.25

Peg Patent, Plain Top. . . . .\$3.50@3.75

Sewing, Brass Ferrule. . . . .\$1.50@1.60

Saddlers', Brass Ferrule. . . . .\$1.55@1.65

Peg, Common. . . . .\$1.55@1.65

Brad, Common. . . . .\$1.50@1.75

**Halters and Ties—**

Covert Mfg. Co., Web. . . . .45¢25¢

Covert Mfg. Co., Jute Rope. . . . .45¢25¢

Covert Mfg. Co., Sisal Rope. . . . .30¢25¢

Covert's Saddlery Works, 96 list. W. V. . . . .60¢10¢

Covert's Saddlery Works, Leather 80¢10¢

Covert's Saddlery Works, Jute. . . . .60¢25¢

Covert's Saddlery Works, Sisal. . . . .60¢

Covert's Saddlery Works, Manila. . . . .60¢25¢

Covert's Saddlery Works, Cotton. . . . .70¢

**Hammer—Handled Hammers—**

Heller's Machinists'. . . . .40¢40¢25¢

Magnetic Tack, No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100. . . . .40¢10¢

Pec, Stow &amp; Wilcox. . . . .40¢40¢25¢

Fayette R. Plumb:  
Artisan's Choice, A. E. Nail. . . . .33½¢25¢

Engineers' and E. S. Hand. . . . .50¢10¢

Machinists' Hammers. . . . .60¢10¢

A. E. &amp; A. E. Bell Face Nail. . . . .33½¢25¢

Riveting and Tinner's. . . . .33½¢25¢

Sargent's C. S. New List. . . . .45¢45¢10¢

**Heavy Hammers and Sledges—**

1 lb. and under. . . . .lb. 45¢

3 to 5 lb. . . . .lb. 35¢ 70¢10¢75¢

Over 5 lb. . . . .lb. 50¢

Note.—Lower prices sometimes made by jobbers.

Wilkinson's Smiths'. . . . .94¢10¢10¢

**Handcuffs and Leg Irons**

See Police Goods.

**Handles—**

Agricultural Tool Handles—

Hoe, Rake, Fork, etc. . . . .50¢10¢50¢

Shovel, etc., Wood D Handle. . . . .50¢25¢

**Cross-Cut Saw Handles—**

Atkins'. . . . .40¢25¢

Champion. . . . .45¢45¢10¢

Dixson's. . . . .50¢

**Mechanics' Tool Handles—**

Auger, assorted. . . . .gro. \$2.00@2.50

Auger, large. . . . .gro. \$2.50@3.00

Brad Aul. . . . .gro. \$1.50@1.75

Chisel Handles:  
Apple Tanged Firmer, gro. ass'd. . . . .22¢25¢

Hickory Tanged Firmer, gro. ass'd. . . . .17¢25¢

Apple Socket Firmer, gro. ass'd. . . . .17¢25¢

Hickory Socket Firmer, gro. ass'd. . . . .17¢25¢

Hickory Socket Framing, gro. ass'd. . . . .22¢25¢

File, assorted. . . . .gro. \$1.00@1.15

Hammer, Hatchet, etc., etc. . . . .60¢10¢

Hand Saw, Varnished, doz. 75¢80¢

Not Varnished. . . . .55¢80¢

**Plane Handles—**

Jack, doz. 23¢25¢; Jack Bolted. . . . .55¢60¢

Fore, doz. 35¢35¢; Fore, Bolted. . . . .70¢75¢

**Hangers—**Barn Door, New Pattern, Round Groove, Regular:  
Inch. . . . .1 1/2 1 1/4 1 1/8 1 1/16 1 1/32 1 1/64 1 1/128 1 1/256 1 1/512 1 1/1024 1 1/2048 1 1/4096 1 1/8192 1 1/16384 1 1/32768 1 1/65536 1 1/131072 1 1/262144 1 1/524288 1 1/1048576 1 1/2097152 1 1/4194304 1 1/8388608 1 1/16777216 1 1/33554432 1 1/67108864 1 1/134217728 1 1/268435456 1 1/536870912 1 1/1073741824 1 1/2147483648 1 1/4294967296 1 1/8589934592 1 1/17179869184 1 1/34359738368 1 1/68719476736 1 1/137438953472 1 1/274877906944 1 1/549755813888 1 1/1099511627776 1 1/2199023255552 1 1/4398046511104 1 1/8796093022208 1 1/17592186044416 1 1/35184372088832 1 1/70368744177664 1 1/140737488355328 1 1/281474976710656 1 1/562949953421312 1 1/1125899906842624 1 1/2251799813685248 1 1/4503599627370496 1 1/9007199254740992 1 1/18014398509481984 1 1/36028797018963968 1 1/72057594037927936 1 1/144115188075855872 1 1/288230376151711744 1 1/576460752303423488 1 1/1152921504606846976 1 1/2305843009213693952 1 1/4611686018427387904 1 1/9223372036854775808 1 1/18446744073709551616 1 1/36893488147419103232 1 1/73786976294838206464 1 1/147573952589676412928 1 1/295147905179352825856 1 1/590295810358705651712 1 1/1180591620717411303424 1 1/2361183241434822606848 1 1/4722366482869645213696 1 1/9444732965739290427392 1 1/18889465931478580854784 1 1/37778931862957161709568 1 1/75557863725914323419136 1 1/151115727451828646838272 1 1/302231454903657293676544 1 1/604462909807314587353088 1 1/1208925819614629174706176 1 1/2417851639229258349412352 1 1/4835703278458516698824704 1 1/9671406556917033397649408 1 1/19342813113834066795298816 1 1/38685626227668133590597632 1 1/77371252455336267181195264 1 1/154742504910672534362390528 1 1/309485009821345068724781056 1 1/618970019642690137449562112 1 1/1237940039285380274899242224 1 1/2475880078570760549798484448 1 1/4951760157141521099596968896 1 1/9903520314283042199193937792 1 1/19807040628566084398387875584 1 1/39614081257132168796775751168 1 1/79228162514264337593551502336 1 1/158456325028528675187103004672 1 1/316912650057057350374206009344 1 1/633825300114114700748412018688 1 1/1267650600228229401496824037376 1 1/2535301200456458802993648074752 1 1/5070602400912917605987296149504 1 1/10141204801825835211974592299008 1 1/20282409603651670423949184598016 1 1/40564819207303340847898369196384 1 1/81129638414606681695796738392768 1 1/162259276829213363391593476785536 1 1/324518553658426726783186953571072 1 1/649037107316853453566373907142144 1 1/129807421463370690713274781428288 1 1/259614842926741381426549562856576 1 1/519229685853482762853099125713152 1 1/103845937170696552570619825142304 1 1/207691874341393105141239650284608 1 1/415383748682786210282479300569216 1 1/830767497365572420564958601138432 1 1/1661534994731144841129917202276864 1 1/3323069989462289682259834404553728 1 1/6646139978924579364519668809107456 1 1/13292279957849158729039337618214912 1 1/26584559915698317458078675236429824 1 1/53169119831396634916157350472859648 1 1/106338239662793269832314700945719296 1 1/212676479325586539664629401891438912 1 1/425352958651173079329258803782877824 1 1/850705917302346158658517607565755648 1 1/1701411834604692317317035215131511296 1 1/3402823669209384634634070430263022592 1 1/6805647338418769269268140860526045184 1 1/13611294676837538538536281721052090368 1 1/27222589353675077077072563442104180736 1 1/54445178707350154154145126884208361472 1 1/108890357414700308308290253768416722944 1 1/217780714829400616616580507536833445888 1 1/4355614296588012332331610150736668917776 1 1/8711228593176024664663220301473337835552 1 1/1742245718635204932932644060346667571104 1 1/3484491437270409865865288120693335142208 1 1/6968982874540819731730576241386670284416 1 1/13937965749081639463461152482773340568832 1 1/27875931498163278926922304965546681137764 1 1/5575186299632655785384460993109336275552 1 1/11150372599265311570768921986218672511104 1 1/22300745198530623141537843972437345022208 1 1/44601490397061246283075687944874690044416 1 1/89202980794122492566151375889749380088832 1 1/178405961588244985132302751779498760177664 1 1/3568119231764899702646055035589975235552 1 1/7136238463529799405292110071179950471104 1 1/14272476927059598810584220142359900842208 1 1/28544953854119197621168440284719801744448 1 1/5708990770823839524233688056943960288896 1 1/11417981541647679048467376113887920577792 1 1/22835963083295358096934752227775841155584 1 1/45671926166590716193869504455551682311168 1 1/91343852333181432387739008911103364622336 1 1/182687704666362864775478018222206732444672 1 1/365375409332725729550956036444413464889344 1 1/730750818665451459101912072888826929778688 1 1/1461501637330902918203824145777653859557376 1 1/2923003274661805836407648291555307719114752 1 1/5846006549323611672815296583110615438229504 1 1/1169201309864722334563059316622107767745088 1 1/233840261972944466912611863324421555490176 1 1/4676805239458889338252237266488431109980352 1 1/9353610478917778676504474532976862219960704 1 1/1870722095783555735300894906595372443921408 1 1/3741444191567111470601789813190744887842816 1 1/7482888383134222941203579626381489775685632 1 1/14965776766268445824407159252762979553711264 1 1/29931553532536891648814318505525959107422528 1 1/59863107065073783297628637011051918214845056 1 1/119726214130147566595257274022101836429690112 1 1/239452428260295133190514548044203672859380224 1 1/478904856520590266381029096088407345718760448 1 1/957809713041180532762058192176814694375320896 1 1/1915619426082361065524116384353629388750641792 1 1/3831238852164722131048232768707258777501283584 1 1/7662477704329444262096465537414517555002567168 1 1/15324955408658888524192931074829035110005134336 1 1/30649910817317777048385862149658070220010268672 1 1/61299821634635554096771724299316140440020537344 1 1/122599643269271108193543448598632280880041074688 1 1/245199286538542216387086897197264561760082193376 1 1/490398573077084432774173794394529123520164386752 1 1/980797146154168865548347588789058247040328773504 1 1/1961594292308337731096695177578116494080657471008 1 1/3923188584616675462193390355156232988161314942016 1 1/7846377169233350924386780710312455976322629884032 1 1/15692754338466701848773561420624911952645259768064 1 1/31385508676933403697547122841249823905290519536128 1 1/62771017353866807395094245682499647810581039072256 1 1/125542034707733614790188491364999295621162780144512 1 1/251084069415467229580376982729998591242325560289024 1 1/502168138830934459160753965459997182484651120578048 1 1/1004336277661868918321507930919993649769302241155936 1 1/2008672555323737836643015861839987299538604482311872 1 1/4017345110647475673286031723679974599077208964623552 1 1/8034690221294951346572063447359949198154417929247104 1 1/16069380442589902693144126894719898396308835858482208 1 1/32138760885179805386288253789439796792617671716964416 1 1/64277521770359610772576507578879593585235343433928832 1 1/128555043540719221545153015157759187170470686867857664 1 1/257110087081438443090306030315518374340941373735715328 1 1/514220174162876886180612060631036748681882747471430656 1 1/1028440348325753772361224121262073497363765494942861312 1 1/2056880696651507544722448242524146994727530989885722624 1 1/4113761393303015089444896485048293989455061979771445248 1 1/8227522786606030178889792970096587978910123959542890496 1 1/16455045573212060357779585940193175957820247919085780992 1 1/32910091146424120715559171880386351915640495838171561984 1 1/65820182292848241431118343760772703831280991676343123968 1 1/131640364585696482862236687521545407662561983352686247936 1 1/263280729171392965724473375043090815325123966705372495872 1 1/526561458342785931448946750086181630650247933410744991744 1 1/105312291668557186289789350017236326130049586682148983488 1 1/210624583337114372579578700034472652260099173364297967976 1 1/421249166674228745159157400068945304520198346728595935952 1 1/84

**Lemon Squeezers—**

See Squeezers, Lemon.

**Lifters, Transom—**

Dickson:			
3 x 4 ft. x 1/2"	\$100	\$11.00	
Other sizes, Iron		70¢	10¢
Other sizes, Brass and Bronze		70¢	
Excelsior		60¢	60¢
Payson's			
Solid Grip Nos. 613 and 614	\$100	\$11.00	
Bronzed Iron		70¢	

**Lines—**

Wire Clothes, Nos. 13	19	20
100 feet	\$3.50	2 75
75 feet		\$1.75
Oswan Mills:		
Crown Solid Braided Chalk		33¢
Mason's, No. 0 to No. 5		33¢
Silver Lake Braided Chalk, No. 0	\$6.00	
No. 1, \$6.50; No. 2, \$7.00; No. 3, \$7.50		
Payson's		30¢

**Locks, &c.— Cabinet—**

Cabinet Locks	33¢	33¢	7 1/2¢
Door Locks, Latches, &c.—			
[Net prices are very often made on these goods.]			
Reading Hardware Co.	40¢		
R. & E. Mfg. Co.	4¢	0¢	
Sargent & Co.	40¢	40¢	10¢
Slaymaker-Barry Co.	30¢	35¢	
Snow's Victor	50¢	10¢	

**Elevator—**

Stowell's	33¢	4¢
-----------	-----	----

**Padlocks—**

Wrought Iron, list Dec. 3, '97	70¢	70¢	10¢
Dog Collar, S. B. Co.	40¢		
R. & E. Mfg. Co. Wrt Steel & d Brass	50¢		
S. B. & Co.	30¢		

**Sash, &c.—**

Fitch's Bronze and Brass	60¢	4¢
Fitch's Iron	70¢	
Ives' Patent	60¢	10¢
Payson's Perfect	70¢	
Payson's Signal (new list)	75¢	
Reading	60¢	10¢

**Machines—****Boring—**

Without Augers.		
Upright.		
Angular.		
Improved No. 3	\$1.25	No. 1 \$5.00
Improved No. 4	3.75	No. 2 3.38
Improved No. 5	2.75	
Jennings	2.50	3.00
Millers Falls	4.75	
Snell's, Rice's Pat.	2.50	2.75
Swan's, No. 500	5.10	No. 200 6.45

**Holisting—**

Moore's Anti-Friction Differential Pulley Block	30¢	
Moore's Hand Hoist, with Lock Brake	20¢	

**Washing—**

Wayne American	\$27.00	
Western Star, No. 2	28.00	
doz.	30.00	
Western Star, No. 3	30.00	
doz.	30.00	
St. Louis, No. 41	30.00	

**Mallets—**

Hickory	45¢	50¢
Lignumvitae	45¢	50¢
Tinners', Hickory and Applewood	50¢	55¢
Fiber Head Stearns'	33¢	10¢

**Mats— Door—**

Elastic Steel (W. G. Co.)	10¢	
---------------------------	-----	--

**Mattocks—**

List Feb. 23, 1899	65¢	65¢	10¢
--------------------	-----	-----	-----

**Meat Cutters—**

See Cutters, Meat.

**Milk Cans—See Cans, Milk.****Mills— Coffee—**

Box and Side, list Jan. 1, '88	60¢	60¢	10¢
Net prices are often made on some goods which are lower than above discounts.			
Enterprise Mfg. Co., list Jan. 17, '98	30¢		
National, list Jan. 1, '94	30¢		
Parker's Columbia and Victor	60¢	10¢	
Parker's Upright	30¢	10¢	40¢
Swift, Lane Bros.	30¢		

**Mincing Knives—**

See Knives, Mincing.

**Molasses Gates—**

See Gates, Molasses.

**Money Drawers—**

See Drawers, Money.

**Mowers, Lawn—**

Net prices are generally quoted.

10	12	14	16-inch
Cheap	\$1.85	\$2.10	
Good	3.25	3.50	3 7/8
High Grade	4.25	4.75	5.00
Pennsylvania and Continental	6.00	6.50	
Quaker City	7.00	8.00	
Great American	7.00	8.50	

**Philadelphia:**

Style M. S. C. K. T.	70¢	10¢
Style A, all Steel	60¢	10¢
Style E, Low Wheel	60¢	10¢
Style R, High Wheel	10¢	10¢
Drexel and Gold Coin, low list	60¢	

**Nails—**

<b>Cut and Wire. See Trade Report.</b>			
<b>Wire Nails and Brads, Papered.</b>			
<b>List July 20, 1899..</b>	<b>.....</b>	<b>80@80&amp;10%</b>	
<b>Hungarian, Finishing, Upholster-</b>			
<b>ers, &amp;c. See Tacks.</b>			

**Horse—**

Nos. 6 7 8 9 10					
A. C.	25¢	23¢	22¢	21¢	21¢
Capewell	19¢	18¢	17¢	16¢	16¢
C. B. K.	25¢	23¢	22¢	21¢	21¢
Champlain	25¢	23¢	22¢	21¢	21¢
Maud S.	25¢	23¢	22¢	21¢	21¢
Neponset	25¢	23¢	22¢	21¢	21¢
Putnam	25¢	23¢	22¢	21¢	21¢
Standard	25¢	23¢	22¢	21¢	21¢
Star	25¢	23¢	22¢	21¢	21¢
Vulcan	25¢	23¢	22¢	21¢	21¢

**Picture**

1 1/2	2	3	3 1/2 in.
Brass Head	1.50	.70	.95
For. Head	1.10	1.10	1.10

**Nippers, See Pliers and Nippers.****Nut Crackers—**

See Crackers, Nut.

**Nuts—**

List Feb. 1, '99.		
Cold Punched.		
Mfrs. or U. S. Standard		
Hexagon, plain	3.90	4.10
Square, plain	3.90	4.10
Square, C. T. & R.	3.70	3.90
Hexagon, C. T. & R.	3.70	3.90
Hot Pressed:		
Mfrs. U. S. or Nar. Gauge Stand.		
Square	4.30	4.50
Hexagon	4.50	4.70
NOTE.—Tapped Nuts are now 2-10¢ higher than above.		

**Oakum—**

Best or Government	1b.	54¢
Navy	1b.	54¢
U. S. Navy	1b.	54¢
Plumbers' Spun Navy	1b.	54¢
In carload lots 1/4 lb. off f. o. b. New York.		

**Oil Tanks—See Tanks, Oil.****Oilers—**

Brass and Copper	10¢	10¢	50¢
Tin or Steel	60¢	10¢	70¢
Zinc	60¢	10¢	65¢
Malleable, Hammer's Improved, No. 1	3.00	No. 2, \$4.00	No. 3, \$4.40
Malleable, Hammer's Old Pattern, same list	50¢	10¢	
Willmot & Hobbs Mfg. Co.	70¢	70¢	10¢

**Openers—****Can—**

French	doz	35¢
Iron Handle	doz	25¢
Sprague, Iron Hdl.	per doz	35¢
Sardine Scissors	doz.	\$1.75
National	per doz.	\$1.75
Stowell's	per doz.	40¢

**Egg—**

Nickel Plate	per doz.	\$2.00
Silver Plate	per doz.	\$4.00

**Packing—****Rubber—**

Standard, fair quality	70¢	10¢	75¢
Inferior quality	75¢	10¢	80¢
Extra	60¢	50¢	10¢
Jenkins' Standard	50¢	25¢	25¢

**Miscellaneous—**

American Packing	9¢	10¢	1b.
Cotton Packing	13¢	14¢	1b.
Italian Packing	10¢	11¢	1b.
Jute	5¢	5¢	1b.
Russia Packing	12¢	13¢	1b.

**Pails—****Creamery—**

S. & Co., with gauges.	No. 1	\$0.50;
No. 2	\$0.75	per doz.

**Galvanized—**

Inch	10	12	14
Water, Standard	\$23.00	\$26.00	\$29.00
Water, Regular	19.00	22.00	25.00
Water, Heavy	22.00	25.50	29.00
Fire, Rd. Bottom			
gro.	31.00	33.00	35.00
Well, gro.	27.00	29.00	31.00

**Pans—****Dripping—**

Large Sizes	1b.	4 1/2¢
Small Sizes	1b.	5 1/2¢

**Fry—**

Standard List	75¢	10¢	50¢
---------------	-----	-----	-----

**Roasting and Baking—**

Real, S. S. & Co., per doz.	Nos. 5, \$1.50;
10, \$2.00; 20, \$5.50; 30, \$6.00	
Simplex, per gro.	No. 40, \$30.00; 50, \$34.50; 60, \$39.00; 140, \$53.00; 150, \$57.50; 160, \$43.00.

**Paper—****Building Paper—**

Per roll		
Rosin Sized Sheathing	500 sq. ft.	
Light wt., 20 sq. ft. to lb.	\$0.40	0.45
Medium wt., 12 sq. ft. to lb.	\$0.60	0.65
Heavy wt., extra quality	\$0.95	1.05
Medium Grades Water Proof	\$0.80	1.25
Sheathing	\$0.50	0.50
Deafening Felt, 9, 6 and 1 1/2 sq. ft. to lb.	\$1.50	0.50
York Haven Waterproof Sheathing	\$1.35	1.75

**Tarred Paper.**

1 ply (roll 300 sq. ft.), ton	\$35.00	40.00
2 ply, roll 100 sq. ft.	90¢	
3 ply, roll 100 sq. ft.	\$1.30	

**Sand and Emery—**

List Dec. 23, 1899	60¢	10¢	50¢	10¢
--------------------	-----	-----	-----	-----

**Parers—****Apple—**

Advance	per doz.	\$4.50
Baldwin	per doz.	\$5.00
Bonanza	each	\$5.00
Dandy	each	\$7.50
Eureka	each	\$16.00
Family Bay State	per doz.	\$12.00
Hudson's Li. Star	per doz.	\$4.00
Hudson's Rocking Table	per doz.	\$5.50
Improved Bay State	per doz.	\$27.00
New Lightning	per doz.	\$5.50
Reading 72	per doz.	\$4.00
Reading 75	per doz.	\$7.00
Turn Table '98	per doz.	\$5.50
White Mountain	per doz.	\$4.00

**Potato—**

Saratoga	per doz.	\$5.50
White Mountain	per doz.	\$4.50

**Paris Green—**

Arsenic, kegs or casks	1b.	13¢
Kegs, 100 to 175 lb.	1b.	13¢
Kits, 14, 25, 50 lb.	1b.	14¢
Paper boxes, 2 to 5 lb.	1b.	14¢
Paper boxes, 1 lb.	1b.	15¢
Paper boxes, 1/2 lb.	1b.	16¢
Paper boxes, 1/4 lb.	1b.	17¢

**Picks and Mattocks—**

List Feb. 23, 1899	65¢	65¢	10¢
--------------------	-----	-----	-----

**Pinking Irons—**

See Irons, Pinking.

**Pins—****Escutcheon—**

Brass	60¢	60¢	5¢
Iron, list Nov. 11, '85	60¢	60¢	5¢

**Pipe, Cast Iron Soil—**

Factory Shipments.

Standard, 2-6 in.	50¢	50¢	10¢
Extra Heavy, 2-6 in.	50¢	10¢	60¢
Fittings	60¢	60¢	10¢

**Pipe, Wrought Iron—**

Factory Shipments.

c	List February, 1899.		
c	Plain and Galvanized:		
c	Carload lots.....	50¢	10¢
0	Less than carload lots.....	50¢	10¢ 2
0	Screw and Socket Casing.....	37 1/2	
3	Inserted Joint Casing.....	37 1/2	
	Cold Drawn Seamless Steel Tubing		

**Planes and Plane Irons—****Wood Planes—**

Molding	40¢	2 1/2¢	40¢	5¢
Bench, First quality	45¢	10¢	45¢	10¢
Bench, Second quality	50¢	10¢	50¢	10¢
Bailey's (Stanley R. & L. Co.)	50¢	10¢	50¢	10¢
Gage Self Setting	50¢	10¢	50¢	10¢

**Iron Planes—**

Bailey's (Stanley R. & L. Co.)	50¢	10¢	50¢	10¢
Chaplin's Iron Planes	50¢	10¢	50¢	10¢
Miscellaneous Planes (Stanley R. & L. Co.)	25¢	10¢	25¢	10¢
Sargent's	50¢	10¢	50¢	10¢

**Plane Irons—**

Wood Bench Plane Irons..	35@35d
Buck Bros.....	5
Butcher's.....	\$5.00@5.25 t
Stanley R. & L. Co...	50&10@50&10&
L. & I. J. White.....	20&5@



**Pulleys—**

Hay Fork, Swivel or Solid Eye.....  
 doz. \$1.60@2.00  
 Hay Fork, Stowell's Anti-Friction, 5-in.  
 Wheel, # doz. \$12.00..... 40%  
 Hot House, Awning, &c..... 60@60@10%  
 Japanned Clothes Line..... 60@60@10%  
 Japanned Screw..... 70@10@10%  
 Japanned Side..... 70@10@10%  
 Stowell's Cellar or End, Anti-Friction 60%  
 Stowell's Dumb Waiter, Anti-Friction.....  
 60@10%  
 Stowell's Electric Light..... 60%  
 Stowell's Side, Anti-Friction..... 60@10%

**Sash Pulleys—**

Common Sense, 1 1/4 in. # doz., 20%  
 2 in., 22%  
 Empire..... 1 1/4 in., 17% 2 in., 19%  
 Grand Rapids All Steel Noiseless..... 40%  
 Ideal No. 13..... 1 1/4 in., # doz., 20%  
 Improved..... 1 1/4 in., 17% 2 in., 19%  
 Niagara..... 1 1/4 in., 16% 2 in., 19%  
 No. 20, Troy..... 1 1/4 in., 16% 2 in., 19%  
 Star..... 1 1/4 in., 16% 2 in., 19%  
 Acme..... 1 1/4 in., 16% 2 in., 19%  
 Fox-All-Steel, Nos. 3 and 7, 2 1/4 in.  
 # doz. 25%  
 No. 9, 1 1/4 in. # d. z. 20%  
 Extra for Plated Finish..... # doz. 20%  
 Extra for Anti-Friction Bronze  
 Pushing..... # doz. 10%  
 Tackle Blocks—See Blocks.

**Pumps—**

Cistern..... 60@60@5%  
 Pitcher Spout..... 70@10@7%  
 Pump Leathers, all sizes..... # gro. \$6.00  
 Flint & Walling's Fast Mail..... 50@55%  
 Loud's Suction Pumps, U. S. Co..... 20%  
 Myer's Pumps, low lift..... 50%  
 Contractors' Rubber Diaphragm Non-  
 chokable, B. & L. Block Co..... 30%

**Punches—**

Revolving (4 tubes)..... doz. \$3.75@4.00  
 Saddlers' or Drive, good..... doz. 65@70%  
 Spring, good quality..... \$1.70@1.80  
 Bemis & Call Co.'s Cast Steel Drive..... 50%  
 Bemis & Call Co.'s Check..... 55%  
 Bemis & Call Co.'s Spring..... 45%  
 Niagara Hollow Punches..... 45%  
 Niagara Solid Punches..... 55%  
 Spring, Leach's Pat..... 15%  
 Steel Screw, B. & K. Mfg. Co..... 40%  
 Tinnars' Hollow, P. S. & W. Co..... 35@35@5%  
 Tinnars' Solid, P. S. & W. Co..... # doz.,  
 \$1.44..... 55%

**Rail—**

Barn Door, &c.—  
 Barn Door, Light, 1 in. 1/4 3/4  
 100 feet..... \$2.00 \$2.50 \$5.00  
 B. D., for N. E. Hangers:  
 Small. Med. Large.  
 100 feet..... \$2.20 \$2.70 \$3.20  
 Sliding Door, Bronzed Wrt Iron,  
 ft. 6 1/4  
 Sliding Door, Iron Painted..... 2 1/2@3c  
 Sliding Door, Wrought Brass, 1 1/4  
 in. lb. 36c..... 30%  
 Cronk's Double Braced Steel Rail, #  
 foot..... 31c  
 Lanes' O. N. T., # 100 ft., 1 inch..... \$3.00  
 Lanes' Standard, # 100 ft..... 4.35  
 Lawrence Bros. Red Head Lows, # 12 1/2  
 McKinney's None Better..... # ft. 3 1/2  
 McKinney's Standard..... # ft. 3 1/2  
 Moore's, Wrt. Bracket, Steel..... 31c  
 Stowell's Steel Rail, Plain..... 10%

**Rakes—**

Aug. 1, 1899, List:  
 Coal Steel..... 70@5@2%  
 Malleable..... 60%  
 Fort Madison Red Head Lows, # 25  
 Fort Madison Blue Head Lows, # 30

**Rasps, Horse—**

Diston's..... 75%  
 Heller Bros..... 60@10@ 0%  
 New Nicholson Horse Rasp..... 70@10%  
 See also Files.

**Razors—**

Fox Razors, No. 42, per doz., \$10.00; No.  
 44, \$12.00; No. 82, Platina \$12.00.

**Razor Straps—**

See Straps, Razor.

**Reels—**

Fishing—  
 Hendryx Aluminum, German Silver,  
 Gold, Bronze, Silver, Rubber, Poplar  
 and Salmon, Single Action, Multiply-  
 ing and Quadruple, all sizes..... 35%  
 Hendryx Single Action Series, 102 P  
 and PN, 202 P and PN, 102 P and  
 PN, 202 P and PN, 304 P and  
 PN, 00304 P and PN, 502 and 502N,  
 502 and 502N, 02084N, Competitor, 50%  
 Hendryx Multiplying and Quadruple  
 Series, 3004N and PN, 4N and PN,  
 504N, 2004P and PN, 00204P, 0024  
 and 0024N, 5009N and PN..... 40@10%

**Registers—**

For points on Mississippi River and  
 East:  
 Black Japanned..... 30@10%  
 White Japanned..... 30@10%  
 Bronzed Finishes..... 30%  
 Nickel Plated..... 30@10%  
 Electro Plated in Brass, &c..... 30@10%  
 White Porcelain..... 20%  
 Solid Brass and Bronze Metal..... 20%  
 Note—Higher prices are quoted in  
 territory further West.

**Riddles, Grain or Sand—**

16 in. per doz..... \$2.00@3.25  
 17 in. per doz..... \$2.25@3.50  
 19 in. per doz..... \$2.50@3.75

**Rings and Ringers—**

Bull Rings—  
 Steel..... \$ 2 1/4 3 Inch.  
 Corner..... \$0.75 0.83 0.88 doz.  
 L. 10 1.20 1.50 1.50 doz.  
 Hog Rings and Ringers—  
 Hill's Rings..... gro. boxes, \$4.50@5.00  
 Hill's Ringers, G. I..... doz. 75c

Blair's Rings..... # gr. \$5.75@6.00  
 Blair's Ringers..... # doz. \$9.00@1.00  
 Brown's Rings..... # gro. \$5.00@1.00  
 Brown's Ringers..... # doz. \$1.00@1.00  
 Perfect Rings..... # gro. \$9.00@9.50  
 Perfect Ringers..... # doz. \$1.25@1.35  
 Rapid Rings..... # gro. \$6.00  
 Rapid Ringers..... # doz. \$3.50

**Rivets and Burrs—**

Copper..... 40@10@50%  
 Iron or Steel:  
 Tinnars'..... 53 1/2@53 1/2@10%  
 Miscellaneous..... 53 1/2@53 1/2@10%

**Rivet Sets—See Sets.****Roasting and Baking  
Pans—See Pans, Roasting and  
Baking.****Rollers—**

Acme Stowell's Anti-Friction..... 50%  
 Barn Door, Sargent's list. 60@10@70%  
 Lane's Stay..... 39@45%  
 Stowell's Barn Door Stay..... # doz. \$1.25

**Rope—**

NOTE—Carload lots, except on Jute  
 Rope, 1/4 c. per lb. less than the following  
 prices, which are for small lots.

Manila, 7-16 in. and larger.  
 Manila..... lb. @ 15 1/2 c.  
 Manila, 1/4 and 5-16 in. lb. @ 16 c.  
 Manila, Tarred Rope, 15  
 thread..... lb. @ 15 1/2 c.  
 Manila Hay Rope Med'm lb. @ 15 1/2 c.  
 Sisal, 7-16 in. and larger, lb. @ 10 1/2 c.  
 Sisal..... 3/4 and 5-16 in. lb. @ 11 c.  
 Sisal, Hay Rope, 2 to 10  
 ply..... lb. @ 10 1/2 c.  
 Sisal, Tarred, Medium  
 Lath Yarn..... lb. @ 10 c.  
 Cotton Rope:  
 Best, 1/4 in. and larger, lb. 13 @ 14 c.  
 Med'm, 1/4 in. and larger lb. 10 @ 12 c.  
 Com., 1/4 in. and larger, lb. 8 @ 10 c.  
 Jute Rope, No. 1, 1/4 in. lb. @ 7 c.  
 Jute Rope No. 2, 1/4 in. lb. @ 6 1/2 c.  
 and up..... lb. @ 6 1/4 c.

**Wire Rope—**

Galvanized..... 20@2 1/2%  
 Plain..... 30@2 1/2%

**Ropes, Hammock—**

Covert Mfr. Co..... 45@2%  
 Covert Saddlery Works..... 60%

**Rules—**

Boxwood..... 75@10@10@10@10@10%  
 Ivory..... 40@10@10@10@10@10%  
 Lukin's Steel..... 50@10%  
 Lukin's Lumber..... 50@10%  
 Stanley R. & L. Co.:  
 Boxwood..... 75@10@10@10@10@10%  
 Ivory..... 35@10@10@35@10@10%

**Sad Irons—See Irons, Sad.****Sand and Emery Paper  
and Cloth—**

See Paper and Cloth.

**Sash Cords—See Cord, Sash.****Sash Locks—See Locks, Sash.****Sash Weights—**

See Weights, Sash.

**Sausage Stuffers or Fill-  
ers—See Stuffers or Fillers,  
Sausage.****Saw Frames—**

See Frames, Saw.

**Saw Sets—See Sets, Saw.****Saw Tools—See Tools, Saw.****Saws—**

Atkins' Circular..... 50@50@10%  
 Atkins' Band..... 50@10@60%  
 Atkins' Cross Cuts..... 35@5%  
 Atkins' Mulay, Mill and Drag..... 50@10%  
 Atkins' One-Man Saw..... 40%  
 Atkins' Wood Saws..... 40%  
 Atkins' Band, Comp. and..... 40%  
 Diston Circular Solid and Lister..... 40%  
 Tooth..... 50%  
 Diston Band 2 to 14 in. wide..... 60%  
 Diston Band 1/4 to 1 1/4..... 70%  
 Diston Crosscuts..... 4@45@10%  
 Diston Narrow Crosscuts..... 50@50@10%  
 Diston Mulay, Mill and Drag..... 60%  
 Diston Framed Woodsaws..... 35@35@7%  
 Diston Woodsaw Blades..... 40@40@7%  
 Diston Woodsaw Rols..... 20%  
 Diston Hand Saws, Nos. 12, 99, 9 1/8  
 1100, D3, 120, 79, 77, 8..... 25@25@7%  
 Diston Hand Saws, No. 7, 107, 10 1/2,  
 3, 1, 0, 00, Combination..... 30@30@7%  
 Diston G. S. Saws, K. Y. H. &c..... 25@25@7%  
 Diston Butcher Saws and Blades..... 35@35@7%  
 C. E. Jennings & Co.'s..... 25@25@3%  
 Peace Circular and Mill..... 50%  
 Peace Cross Cuts, list Jan. 1, '99..... 50%  
 Peace Hand, Panel and Rip..... 30%  
 Richardson's Cross and..... 50%  
 Richardson's X Cuts, list Jan. 1, '99..... 50%  
 Richardson's Hand, &c..... 50%  
 Shanda's Circular Saws..... 50%  
 Simonds' Crescent Ground Cross Cut  
 Saws..... 35%  
 Simonds' One-Man Cross Cuts..... 40@10%  
 Simonds' Gang Mill, Mulay and Drag  
 Saws..... 45@45@5%

**Hack Saws—**

Diston Concave Blades..... 25%  
 Diston Keystone..... 30%  
 Diston Hack Saw Frames..... 30%  
 Griffin's complete..... 50@50@10%  
 Griffin's Hack Saw Blades..... 50@50@10%  
 Star Hack Saws and Blades..... 15@10%

**Scroll—**

Barnes' No. 7, \$15..... 25%  
 Barnes' Scroll Saw Blades..... 40%  
 Barnes' Velocipede Power Scroll Saw,  
 without boring attachment, \$20..... 30%  
 Lister, complete, \$10.00..... 15@10%  
 Rogers, complete \$4.00..... 15@10%

**Scale Beams—**

See Beams, Scale.

**Scales—**

Family, Turnbull's..... 30@30@10%  
 Hatch, Counter:  
 Platform, 1/2 lb. by 1/2 oz. doz. \$5.75  
 Two Platforms, 3 lb. by 1/2 oz. doz. \$16.00

Union Platform, Plain..... \$2.00@2.25

Union Platform, Striped..... \$2.15@2.25

Chattillon's Eureka..... 25%

Chattillon's Favorite..... 40%

Chattillon's Grocers' Trip Scales..... 50%

Pelouze Scales—Family, Cany.  
 Grocers and Postal..... New list net

"The Standard" Portables..... 45%

"The Standard" R. R. and Wagon..... 50%

**Scrapers—**

Box, 1 Handle..... doz. \$2.25@2.75

Box, 2 Handle..... doz. \$3.75@4.00

Ship, No. 1, doz. \$3.50; No. 2..... \$2.25@2.40

Adjustable Box Scraper (S. R. & L. Co.)  
 \$6.00..... 40@10%

Foot, W. E. Pratt Mfg. Co..... # doz. \$1.15@1.25

**Screens, Window and  
Frames—**

Bonanza Window Screens..... 50@10@2 1/2%

Maine Window Screen Frames 40@10@5%

Phillips' Window Screen Frames..... 60%

Forster's Extension Window Screens..... 50@10%

Wabash Spring Adj. Screen..... 50%

**Screw Drivers—**

See Drivers, Screw.

**Screws—****Bench and Hand—**

Bench, Iron..... doz. 1 in., \$2.50@2.75;  
 1 1/2, \$2.85@3.10; 1 3/4, \$3.85@3.50

Bench, Wood, Beech..... doz. \$3.50@2.75

Hand, Wood..... 35@40%

Hand, Grand Rapids..... 35%

Hand, R. Bliss Mfg Co..... 35%

**Coach, Lag and Hand Rail—**

Lag, Common Point, list Oct. 1,  
 '99..... 65@5@ 1/2%

Coach and Lag, Gimlet Point, list  
 Oct. 1, '99..... 65@ 1/2%

Hand Rail, list Jan. 1, \$1.60@1.00..... %

**Jack Screws—**

Millers Falls..... 50@10@10%

Millers Falls, Roller..... 50@10%

P. S. & W..... 40@5@40@10%

Sargent..... 60@10@60@10@10%

**Machine—**

List Jan. 1, '98.

Flat or Round Head, Iron..... 50%

Flat or Round Head, Brass..... 50%

**Set and Cap—**

Set (Iron or Steel)..... 60%

Sq. Hd. Cap..... 55%

Hex. Hd. Cap..... 50%

**Wood—**

List Jan. 1, 1900.

Flat Head, Iron..... 90%

Round Head, Iron..... 75%

Flat Head, Brass..... 75%

Round Head, Brass..... 75%

Flat Head, Bronze..... 75%

Round Head, Bronze..... 75%

Drive Screws..... 70%

Note.—An extra 10 or 10@5% is  
 often given.

**Scroll Saws—See Saws, Scroll.****Scythes—**

Clipper Scythes:  
 Natural Finish..... per doz. \$3.00

Pol. Blade..... per doz. \$3.40

Painted, Red and Green..... per doz. \$3.25

Weed and Bush..... per doz. \$7.50@7.75

**Scythe Snaths—**

See Snaths, Scythes.

**Seeders—**

Raisin..... 25@30%

**Sets—****Brad Axl and Tool Sets—**

Wood Hdl., 10 Axl's doz. \$2.00@2.25

Wood Hdl., 14 Axl's, 6 Tools..... doz. \$2.50@2.60

Aiken's Sets, Aw and Tools:  
 No. 20, # doz. \$10.00, 60@10@60@10@3%

Fray's Adj. Tool Hdl's, Nos. 1, 1 1/2; 2,  
 \$18; 4, \$12; 4 1/2; 5, \$7..... 50%

Millers Falls Adj. Tool Hdl's, No. 1,  
 \$12; No. 4, \$12; No. 5, \$18..... 15@10%

Stanley's Excelsior:  
 No. 1, \$7.50; No. 2, \$4.00; No. 3,  
 \$5.50..... 30@10@40@10@10%

**Garden Tool Sets—**

Ft. Madison Rakes, Shovel and Hoe.....  
 # doz. \$9.00

**Nail—**

Round, assorted..... gro. \$5.25@3.75

Octagon..... gro. \$5.25@4.75

Knurled, Good..... gro. \$6.00@5.50

Buck Brothers..... 37 1/4%

Cannon's Diamond Point, # gr. \$13.25%

Snell's Corrugated, Cup Pt..... 50%

Snell's Knurled, Cup Pt..... 60%

**Rivet—**

Regular list..... 70@70@10@5%

**Saw—**

Aiken's Genuine..... # doz. \$4.50@5.00

Aiken's Imitation..... # doz. \$3.00@3.10

Aiken's Criterion..... 40%

Atkin's Adjustable..... 40%

Bemis & Call Co.'s Cross Cut..... 30%

Bemis & Call Co.'s Plate..... 30%  
 Bemis & Call Spring Hammer..... 30%  
 Diston's Star and Mona ch..... 25%  
 Hammer, Bemis & Call Co.'s new Pat. 4-  
 Morrill's No. 1, \$15.00..... 40@20%  
 Nos. 3 and 4, Cross Cut, \$25.00, 40@20%  
 No. 5, Mill, \$31.00..... 40@20%  
 No. 10, \$15.50..... 40@20%  
 No. 11, \$16.00..... 40@20%  
 Taintor Positive, # doz. \$18..... 60%

**Sharpeners, Knife—**

Tanite Mills # gross, \$14.40..... 25@33@45

**Shaves, Spoke—**

Iron..... doz. \$1.00@1.25

Wood..... doz. \$1.75@2.25

Balley's (Stanley R. & L. Co.)..... 50@10%

Goodell's, # doz. \$9.00..... 15@10%

**Shears—**

Cast Iron..... 7 8 9 in.

Best..... \$16.00 18.00 20.00 gro.

Good..... \$13.00 15.00 17.00 gro.

Cheap..... \$5.00 6.00 7.00 gro.

Straight Trimmers, &c.:  
 Best quality, Jap..... 60@10@10@70@5%

Nickel..... 60@60@5%

**Shovels and Tongs—**

Brass Head.....60¢5@60¢10¢  
 Iron Head.....60¢5@60¢10¢

**Sieves and Sifters—**

Hunter's Imitation, gro. \$11.00@12.00  
 Buffalo Metallic Blued. S. & Co., gr. 14 & 16 16¢18 18¢20  
 12, 16 12.90 13.80 15.00  
 Electric Light.....gr. \$10.00  
 Hunter's Genuine.....gr. \$12.50  
 Shaker (Barber's Pat.) Flour Sifters.....35¢  
 # doz., \$3.00

**Sieves, Wooden Rim—**

Nested, 10, 11 and 12 Inch.  
 Mesh 18, Nested, doz.....\$0.75@0.90  
 Mesh 20, Nested, doz......85@.90  
 Mesh 24, Nested, doz.....1.00@1.05

**Sinks—****Cast Iron—**

Low list.....60¢65¢  
 NOTE.—The low list is now generally used, but some jobbers use high list.

**Wrought Steel—**

Columbus Galv'd and Enamelled.....60¢5¢  
 Columbus, Painted.....45¢  
 L. & G.....50¢

**Skeins, Wagon—**

Cast Iron.....70¢70¢10¢  
 Malleable Iron.....40¢10¢50¢  
 Steel.....50¢55¢55¢  
 I. L. & B. Co. Steel.....35¢

**Slates—**

"D" Slates.....60¢10¢50¢10¢10¢  
 Unexcelled Noiseless Slates.....  
 60¢5¢10¢50¢10¢50¢  
 Wire Bound.....40¢10¢50¢  
 Double Slates, add \$1 case, net.

**Slaw Cutters—See Cutters.****Snaps, Harness—**

German.....40¢40¢10¢  
 Covert Mfg. Co.:  
 Derby.....35¢25¢  
 High Grade.....45¢25¢  
 Jockey.....40¢25¢  
 Trojan.....45¢25¢

Covert's Saddlery Works:  
 Banner.....60¢10¢  
 Crown.....60¢10¢  
 Triumph.....60¢10¢

W. & E. T. Fitch Co.:  
 Bristol.....40¢10¢  
 Empire.....50¢5¢  
 German.....40¢  
 National.....50¢5¢  
 Perfect.....45¢  
 Clipper.....50¢5¢  
 Champion.....40¢  
 Security.....40¢  
 Victor.....60¢5¢

Onela Communion Ty:  
 Sol d Steel.....65¢85¢10¢  
 Sol d Swivel.....55¢10¢10¢  
 Sargent's Patent Guarded.....60¢5¢10¢

**Snaths—**

Scythe.....45¢55¢

**Snips, Tinnners—See Shears.****Soldering Irons—**

See Irons, Soldering.

**Spoke Trimmers—**

See Trimmers, Spoke.

**Spoons and Forks—****Silver Plated—**

Flat Ware.....50¢10¢60¢10¢  
 Wm. Rogers Mfg. Co.....50¢10¢

**Miscellaneous—**

German Silver.....60¢10¢  
 Wm. Rogers Mfg. Co.:  
 18% German Silver.....60¢  
 Rogers' Silver Metal.....50¢10¢

**Springs—****Door—**

Gem (Coll).....20¢  
 Star (Coll).....30¢  
 Torrey's Rod, 99 in.....\$1.10@1.35  
 Warner's No. 1, # doz. \$1.50; No. 2, \$3.40  
 Victor (Coll).....60¢10¢60¢10¢55¢

**Carriage, Wagon, &c.**

1 1/4 in. and wider.....Bk. Hf. Brt. Brt.  
 Tealed and Temp 5/4 5/4 6c lb  
 Oil Tealed.....  
 Tempered.....6 1/4 6 1/4 7c lb  
 Cliff's Bolster Springs.....3¢  
 Cliff's Seat Springs.....pair 55¢

**Sprinklers, Lawn—**

Enterprise.....25¢30¢  
 Philadelphia No. 1, # doz. \$12; No. 2, \$15; No. 3, \$18

**Squares—**

Nickel plated.....List Jan. 5, 1900  
 Steel and Iron.....70¢70¢50¢  
 Rosewood Hdl. Try Square and T-Bevels.....60¢10¢10¢70¢  
 Iron Hdl. Try Squares and T-Bevels.....40¢10¢40¢10¢10¢  
 Diston's Try Sq. and T-Bevels.....60¢10¢  
 Winterbottom's Try and Miter.....50¢10¢

**Squeezers—****Lemon—**

Wood, Common, gro., No. 0. \$5.25  
 @ \$5.50; No. 1, \$5.25@5.50.  
 Wood, Porcelain Lined:  
 Cheap.....doz. \$2.00@2.75  
 Good Grade.....doz. \$3.00@3.50

Tinned Iron.....doz. \$0.75@1.25  
 Iron, Porcelain Lined doz. \$2.90@3.25  
 Jennings' Star.....# doz. \$1.85@1.90  
 King.....# doz. \$2.00

**Staples—**

Barbed Blind.....lb. 9@10¢  
 Electricians', Association list.....75¢10¢  
 Fence Staples, same price as Barbed Wire. See Trade Report.  
 Poultry Netting.....80¢10¢  
 Grand Crossing Tack Co.'s list.....75¢10¢

**Steels, Butchers'—**

Dick's.....40¢  
 Foster Bros.....30¢  
 C. & A. Hoffmann's.....40¢  
 Nichols Bros.....50¢

**Steelyards—25¢25¢10¢****Stocks and Dies—**

Blacksmiths'.....40¢  
 Gardner.....50¢  
 Green River.....25¢  
 Lightning Screw Plate.....25¢  
 Little Giant.....25¢  
 Re-see's New Screw Plates.....25¢30¢  
 Curtis Reversible Ratchet Die Stock.....25¢

**Stone—****Scythe Stones—**

Pike Mfg. Co., list '95-'96.....33¢4¢  
 Cleveland Stone Co., list Nov., '98.....33¢4¢

**Oil Stones, &c.**

Pike Mfg. Co.:  
 Hindostan No. 1, # doz. \$8¢  
 Sand Stone.....5¢  
 Turkey Oil Stone, Extra, 5 to 9 in.....80¢  
 Turkey Slips.....\$1.50  
 Lily White Washita.....60¢  
 Rosy Red Washita.....60¢  
 Washita Stone, Extra.....50¢  
 Washita Stone, No. 1.....40¢  
 Washita Stone, No. 2.....30¢  
 Lily White Slips.....30¢  
 Rosy Red Slips.....30¢  
 Washita Slips, Extra.....30¢  
 Washita Slips, No. 1.....70¢  
 Arkansas Stone, No. 1, 3 to 5 in. \$2.50  
 Arkansas Stone, No. 1, 5 to 8 in. \$3.50  
 Tanite Mills:  
 Emery Oil, # doz. \$3.00.....50¢60¢

**Stoners—****Cherry—**

Enterprise.....25¢30¢

**Stops, Bench—**

Millers Falls.....15¢10¢  
 Morrill's...# doz. No. 1, \$10.00; No. 2, \$11.00, 40¢30¢

**Stops, Window—**

Ives' Patent.....25¢5¢  
 Tappin's.....40¢  
 Wilcox, Steel, per doz. \$0.00.....50¢

**Stove Boards—**

See Boards, Stove.

**Stove Polish—See Polish, Stove.****Straps, Box—**

Cary's Universal, case lots.....20¢10¢

**Stretchers, Carpet—**

Cast Iron, Steel Points.....doz. 55¢65¢  
 Cast Steel, Polished.....doz. \$2.25  
 Socket.....doz. \$1.75

**Stuffers, Sausage—**

Miles' Challenge, # doz. \$30.....50¢50¢5¢  
 Enterprise Mfg. Co.....35¢55¢75¢  
 National Specialty Mfg. Co., list Jan. 1, '97.....30¢

**Tacks, Brads, &c.—**

List Jan. 15, '99.  
 Carpet Tacks:  
 American Blued.....90¢90¢10¢  
 American Tinned.....90¢90¢10¢  
 American Cut Tacks.....85¢10¢85¢10¢10¢  
 Suedes Iron Tacks.....90¢90¢10¢  
 Suedes Upholsterers' Tacks.....90¢90¢10¢25¢  
 Gimp Tacks.....90¢90¢10¢25¢  
 Lace Tacks.....90¢90¢10¢25¢  
 Trimmers' Tacks.....90¢90¢10¢  
 Looking Glass Tacks.....70¢70¢10¢  
 Bill Posters and Railroad Tack.....90¢20¢90¢25¢  
 Hungarian Nails.....80¢25¢80¢15¢  
 Common and Patent Brads.....70¢5¢  
 Trunk and Clout Nails.....75¢5¢75¢10¢5¢  
 NOTE.—The above prices are for straight weights. An extra 5% is given Star Weights and an extra 10% on Standard Weights.

**Miscellaneous—**

Double Point Tacks.....9¢1 or 5 10¢  
 Steel Wire Brads, R. & E. Mfg. Co.'s list.....50¢10¢60¢  
 See also Nails, Wire.  
 Tanks, Oil—  
 Emerald, S. S. & Co.....30-gal. \$3.20  
 Emerald, S. S. & Co.....60-gal. \$4.00  
 Queen City S. S. & Co., 70-gal. \$3.50  
 Queen City S. S. & Co., 60-gal. \$4.25  
 Tapes, Measuring—  
 American Ases' Skin.....90¢1 or 5 10¢  
 Patent Leather.....85¢30¢5¢  
 Steel.....40¢10¢5¢  
 Chesterman's.....85¢25¢5¢

Eddy's Steel.....40¢40¢5¢  
 Eddy's Metallic.....33¢4¢5¢  
 Keuffel & Esser Co., Steel and metallic, Lower list, 1899.....35¢  
 Lufkin's Steel.....33¢4¢35¢  
 Lufkin's Metallic.....30¢5¢

**Thermometers—**

Tin Case.....80¢80¢10¢

**Ties, Bale—Steel.**

Standard Wire.....50¢10¢5¢

**Ties, Wall—**

Cleveland, Steel.....# 1000, \$10.00

**Tinners' Shears, &c.—**

See Shears, Tinnners', &c.

**Tinware—**

Stamped, Japanned and Piced, sold very generally at net prices.

**Tire Benders, Upsetters, &c.—See Benders and Upsetters, Tire.****Tobacco Cutters—**

See Cutters, Tobacco

**Tools—****Coopers'—**

L. & I. J. White.....20¢20¢5¢

**Saw—**

Atkins' new list.....40¢  
 Simonds' Improved.....33¢4¢  
 Simonds' Crescent.....25¢

**Ship—**

L. & I. J. White.....25¢

**Transom Lifters—**

See Lifters, Transom.

**Traps—Game—**

Oneida Pattern.....70¢10¢75¢5¢  
 Newhouse.....45¢50¢  
 Hawley & Norton.....65¢5¢70¢  
 Victor (Oneida Pattern).....75¢70¢10¢  
 Star (Blake Pattern).....65¢10¢70¢5¢

**Mouse and Rat—**

Mouse, Wood, Choker, doz. holes 9@10¢

Mouse, Round or Square Wire.....doz. \$0.85@1.00

Marty French Rat and Mouse Traps (Genuine):

No. 1, Rat, # doz. \$12.00; case of 24 \$10.50

No. 3, Rat, # doz. \$5.50; case of 50 \$5.00

No. 3 1/2, Rat, # doz. \$1.50; case of 72 \$1.00

No. 4, Mouse, # doz. \$3.50; case of 72 \$2.75

No. 5, Mouse, # doz. \$2.75; case of 150 \$2.25

Schuyler's Bat Killer, No. 1, # gr. \$30.00; No. 2, # gr. \$30.00; Mouse, No. 3, \$18.00, 5¢

Out o' Sight, Mouse, No. 1, # doz. 60¢; Rat, No. 2, \$1.25; Mo'e, \$8.00; Gopher, \$1.50; Stop Thief, No. 1, \$1.25; No. 2, \$1.50.

**FLY—**

Balloon, Globe or Acme.....doz. \$1.15@1.25; gro. \$12.00@14.00

Harper, Champion or Paragon.....doz. \$1.25@1.40; gro. \$15.50@15.00

**Trimmers, Spoke—**

Bonney's Nos. 1 and 2.....40¢  
 Stearns.....25¢

**Trowels—**

Diston Brick and Pointing.....30¢

Diston Plastering.....25¢

Diston "Standard Brand" and Galvanized Trowels.....40¢

Never-Break steel Garden Trowels.....gro. \$7.00

Peace's Plastering.....30¢

Rose Brick and Plastering.....25¢5¢

Woodrough & McParlin, Pl'st'ring.....25¢10¢

**Trucks, Warehouse, &c.—**

B. & L. Block Co.'s list.....40¢

Daisy Stove Trucks, Improved pattern # doz. \$21.00

**Tubs, Wash—**

No. 1 # 3

Galvanized, per doz. \$5.00 \$5.50 6.00

Galvanized S. S. & Co., with Wringer Attachment # doz. No. 10, \$7.25

No. 20, \$7.75; No. 30.....\$8.25

**Twine—****Binder—**

Carload lots f.o.b. New York, Philadelphia or Boston.

White Sisal, 500 ft. to lb. per lb. 11¢4¢

Standard, 500 ft. to lb. per lb. 11¢4¢

Manila, 600 ft. to lb. per lb. 14¢4¢

Pure Manila, 650 ft. to lb. per lb. 15¢4¢

Less than carloads add 1/4¢ per lb.

**Miscellaneous—****Flax Twine—**

No. 9, 1/4 and 1/2-lb. Balls.....25¢ 36¢

No. 12, 1/4 and 1/2-lb. Balls.....19¢ 28¢

No. 18, 1/4 and 1/2-lb. Balls.....16¢ 19¢

No. 24, 1/4 and 1/2-lb. Balls.....16¢ 19¢

No. 36, 1/4 and 1/2-lb. Balls.....15¢ 18¢

Chalk Line, Cotton, 1/2-lb. Balls.....18¢20¢

Cotton Mops, 6, 9, 12 and 15 lb. to doz.....7¢30¢

Cotton Wrapping, 5 Balls to lb.....9¢16¢

American 2-Ply Hemp, 1/4 and 1/2-lb. Balls.....12¢13¢

American 3-Ply Hemp, 1-lb. Balls.....12¢13¢

India 2-Ply Hemp, 1/4 and 1/2-lb. Balls (Spring Twine).....10¢  
 India 3-Ply Hemp, 1-lb. Balls.....10¢  
 India 3-Ply Hemp, 1 1/2-lb. Balls.....9¢  
 2, 3, 4 and 5-Ply Jute, 1/2-lb. Balls.....8¢9¢

Mason Line, Linen, 1/2-lb. Balls.....45¢

No. 26 Mattress, 1/4 and 1/2-lb. Balls.....35¢

Wool.....70¢

**Vises—**

Solid Box.....40¢10¢

Bonney's Saw Vises.....40¢10¢

**Parallel—**

Athol Machine Co.:  
 Simpson's Adjustable.....40¢  
 Standard.....40¢

Amateur.....40¢10¢

Bonney's.....15¢10¢

Fisher & Norris Double Screw.....40¢40¢10¢

Hollands.....20¢20¢

Lewis Tool Co.....15¢20¢

Massey's Perfect.....30¢40¢

Massey's Clincher.....20¢

Merrill's.....low list 10¢

Parker's:  
 Victor.....20¢25¢

Regulars.....20¢25¢

Vulcan's.....40¢45¢

Combination Pipe.....55¢60¢

Prentiss.....20¢25¢

Sargent's.....60¢60¢10¢

Simpson's Adjustable.....40¢

Snediker's X. L.....20¢25¢

Stephens.....20¢25¢

Toles' Woodworking.....25¢

Van, W. & W. Hdwr. Co.....40¢

**Saw Filers—**

Bonney's No. 1, \$13; No. 3, \$6.50@10¢

Diston's D 3 Clamp and Guide, # d \$30.....25¢

Reading.....40¢10¢

Wentworth's Rubber Jaw, Nos. 1, 2 and 3.....30¢75¢

**Miscellaneous—**

Signal & Keeler Combination Pipe Vise.....60¢

Parker's Combination Pipe:  
 87 Series.....60¢  
 187 Series.....60¢5¢  
 No. 870.....40¢

**Wads—Price Per M.**

B. E., 11 up.....60¢

B. E., 9 and 10.....70¢

B. E., 8.....80¢

B. E., 7.....80¢

P. E., 11 up.....\$1.00

P. E., 9 and



Bemis & Call's:	
Adjustable S.....	95¢/5¢
Adjustable Pipe.....	40¢
Bright's Pattern.....	30¢/40¢
Combination Bright.....	40¢
Combination Bright.....	40¢
Cylinder or Gas Pipe.....	53¢
Extra Heavy.....	48¢
Merrick's Pattern.....	50¢
No. 8 Pipe, Bright.....	55¢
Bindley Automatic.....	30¢
Boardman's.....	33¢/4¢
Bull Dog, W. & B.....	60¢/10¢/10¢
Donchue's Engineer.....	40¢/10¢
Eagle.....	50¢/10¢
Hercules.....	70¢
Solid Handles, P. S. & W.....	40¢/10¢
Stevenson.....	60¢/10¢/10¢
Stillson's.....	55¢

Wire Picture Cord, see Cord.  
**Bright Wire Goods—**  
*Iron and Brass, list July 1, 1899....*  
*80¢10¢80¢10¢10¢*

**Wire Cloth and Netting—**  
*Galvanized Wire Netting.....*  
*75¢ 10' to 75¢ 10' 50'*  
*Painted Screen Cloth per 100 ft.....*  
*\$1.45 to 1.50*  
*Hardware Grade, 2 to 18 mesh.....*

Hardware Grade, 20 x 20 mesh. . . . .  
sq. ft. 3 @ 3 1/4

Galv Hardware Grade, 3 to 5 mesh...  
sq. ft. 3 1/4 @ 39 1/2

**Wise Barb**—See Trade Report

**Wire Barb**—See *Trade Repor.*  
**Wire, Rope**—See *Rope, Wire.*  
**Wrenches**—See *Tools.*

**Wrenches—**  
*Agricultural*.....75@...  
*Baxter's S.*.....60&10

Coes' Genuine.....	25&10&5&5&3%
Coes' "Mechanics".....	25&10&10&5&5&3%
Acme .....	60&10%

Alken's Pocket (Bright).....\$2.00@3.90  
Alligator.....80&10&10%

Linseed, raw Calcutta seed.....	50	58
Lard, Prime	50	53

Lard, No. 1.....	50	53
Lard, No. 2.....	44	48
Lard, No. 3.....	44	48
Cotton-seed, Crude.....	33	34
Cotton-seed, Summer Yellow, prime.....	36	37
Cotton-seed Summer Yellow, off grades.....	36	37
Sperm, Crude.....	50	51
Sperm, Bleached.....	50	51
Sperm, Bleached Spring.....	50	51
Sperm, Natural Winter.....	55	56
Sperm, Bleached Winter.....	60	63
Whale, Crude.....	46	47
Whale, Natural Winter.....	46	47
Whale, Extra Bleached Win.....	50	51
Menhaden, Bleached.....	30	31
Menhaden, Light S'rand.....	30	31
Menhaden, Bleached Winter.....	35	36
Menhaden, Extra Bleached.....	37	38
Tallow, prime.....	55	56
Cocoonut, Ceylon.....	57 1/2	62
Cocoonut, Cochlin.....	68 1/2	69 1/2
Cod, Newfound.....	38	38
Cod, Newfound.....	38	38
Red Elaine.....	36	40
Red Saponified.....	54	54
Bank.....	7 gal.	54
Straits.....	60	61
Olive, Italian, bbls.....	60	61

Neatsfoot, prime.....	48	50
Palm, prime, Lagos.....	7 1/2	6 1/4

<b>Mineral Oils.</b>		
Black, 20 gravity, 25¢30 cold test.....	11	1114
Black, 20 gravity, 15 cold test.....	12	1214
Black, summer.....	104	111
Cylinder, light filtered.....	15	174
Cylinder, dark filtered.....	13	18
Paraffine, 903-907 gravity.....	15	154
Paraffine, 908 gravity.....	14	144
Paraffine, 885 gravity.....	124	134
Paraffine, red, No. 1.....	15	184
In small lots at advance		

Cylinder, light filtered.....	15	@17½
Cylinder, dark filtered.....	13	@18

Paraffine, 903-907 gravity.....	16	15%
Paraffine, 908 gravity.....	14	14%
Paraffine, 883 gravity.....	13 1/2	18
Paraffine, red, No. 1.....	15	15%

In small lots 1¢ advance.

UNITED STATES AND BRITISH AMERICA.

**RATES OF ADVERTISING: ONE INCH.**

New York (Main Office),	232-238 William Street,	DAVID WILLIAMS CO., Pub'rs.
Philadelphia,	Forrest Building, 117 119 South Fourth Street,	THOMAS HOBSON, Manager.
Pittsburgh,	Hamilton Building, 335-337 Fifth Avenue,	ROBERT A. WALKER, Manager.
Chicago,	Fisher Building, Dearborn and Van Buren Streets,	H. H. ROBERTS, Business Manager.
Cincinnati,	Pickering Building, 5th and Main Streets,	GEO. W. COPE, Resident Asso. Ed.
St. Louis,	Chemical Building, 721 Olive Street,	HENRY SMITH, Manager.
Boston,	Mason Building, 70 Kilby Street,	C. F. WIELAND, Manager.
Cleveland,	The Cuyahoga, 311 Superior Street,	WALTER C. ENGLISH, Manager.
		EZRA S. ADAMS, Manager.

**AUSTRALIAN OFFICES:** Melbourne, Hardware Chambers, 231 Elizabeth Street; Sydney, Palings Buildings.

Entered at the Post Office, New York, as Second-class Matter.





**MADE IN VARIOUS SIZES**

See Our Advertisement, Issue February 1.

**CARY MFG CO.,** 19 & 21 Roosevelt St.,  
NEW YORK.**WHY ARE WE LEADERS?**

BECAUSE the largest consumers acknowledge the Superior quality of our

**Scrap Copper, Scrap Brass, Scrap Lead, Scrap Zinc,**  
and all kinds of old Metals. Write for prices to**THEODORE HOFELLER & CO..**

98, 100, 102 TERRACE, BUFFALO, N. Y.

All Metals Carefully GRADED and Made FREE of Iron.



THE WILLIAMS PRINTING CO.,

Commercial Printers and Binders,

CATALOGUES A SPECIALTY.

232-238 William St., - New York.

**OURWAY IRON**

Equal to Best Swedish and Norway.

ESTABLISHED 1845.

**BROWN & CO., INC.,**  
PITTSBURGH, PA.

Practical Drawings for the Erection of Low Cost Houses.

**Cottage Designs with Constructive Details**

BY VARIOUS ARCHITECTS.

**A PRACTICAL BOOK FOR BUILDERS AND THOSE INTENDING TO BUILD.**

A series of twenty-five designs of cottages, most of which have already been erected, ranging in cost from \$600 to \$1,500, together with constructive details of interior and exterior finish, all drawn to convenient scale and accompanied by brief specifications.

**PRICE, \$1.00.**One of the many features of *Carpentry and Building* is the publication in each issue of one or more practical designs of attractive houses with accompanying floor plans, details, &c. A selection of these designs is now presented in convenient book form.These plans are especially complete and available for the requirements of builders and carpenters, for not only are floor plans and elevations given, but also the *details of construction*, showing how the work is done as well as the style of interior trim and exterior finish, all *drawn to convenient scale*.The practical value of the designs is further enhanced by the addition of brief *specifications*.

Practical builders and those who wish to act as their own architects will find in this valuable book many complete details of construction for a variety of attractive, well arranged, and inexpensive cottages or suburban residences.

**SENT, POSTPAID, ON RECEIPT OF ONE DOLLAR.****DAVID WILLIAMS COMPANY, Publishers,** - 232-238 William Street. New York!

**SHELBY SEAMLESS STEEL TUBING** may be applied to a multitude of uses in the Mechanical Engineering field, where exact gauge, great strength, durability, ductility and fine finish are required. *SHELBY TUBING lightens construction, adds strength, saves time and money.* Are these points worthy of your consideration? If so, let us know your requirements. Get our prices and samples. Price List "E" is worth having; it is yours for the asking.

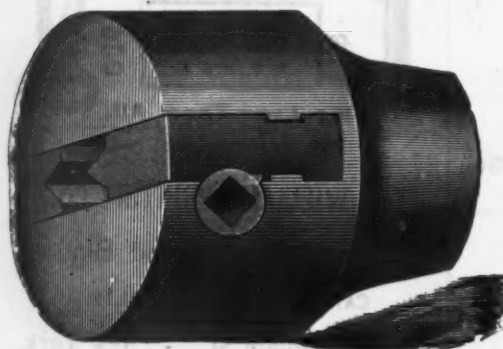
**SHELBY STEEL TUBE COMPANY,**

General Sales Office, American Trust Building, Cleveland, Ohio, U. S. A.

## BRANCH OFFICES:

No. 144 Chambers St.,  
New York.No. 135 Lake St.,  
Chicago.No. 153 Milk St.,  
Boston.No. 29 Constitution Hill,  
Birmingham, England.

# REID DRILL CHUCKS.



## THREE SIZES.

No. 0 takes any drill from 0 to 1-2 inch inclusive.

No. 1 " " " " 0 " 3-4 " "

No. 2 " " " " 0 " 1 " "

They are the strongest and most durable made. Drill absolutely in the center. No twisting or bending necessary if drill is straight. Can be fitted to hollow spindle lathes for working long rods.

**SEND FOR CIRCULAR.**

**R. H. BROWN & CO., - New Haven, Conn.**

*You take no risk on the quality  
We make only the best!*



**SAND  
PAPERS**  
IN  
Reams and Rolls

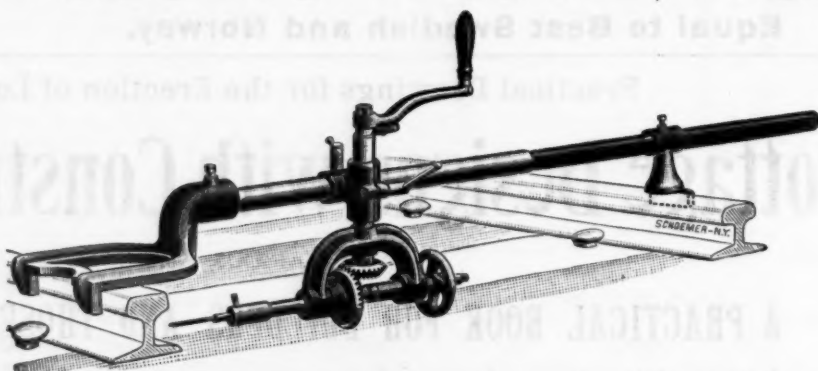
**Flint Paper  
Carnet Paper  
Emery Paper  
Emery Cloth**

**ANIR FELTING** for covering Boilers, Steam and Water Pipe, and lining Refrigerators.

**BAEDER, ADAMSON & Co.**

730 MARKET STREET, PHILADELPHIA.  
67 BECKMAN STREET, NEW YORK.  
649 MILK STREET, BOSTON.  
982 LAKE STREET, CHICAGO.

## Track Drill, No. 5.



Engineers and contractors familiar with the work the drill is intended for, will at a glance see its utility and convenience. Two sets of gears go with each drill, making it either speeded or geared back. It weighs 68 lbs. and will carry drills up to 1 inch.

**PRICE, - \$25.00.**

A chuck is furnished with each machine which will hold Drills smaller than  $\frac{1}{4}$  inch.

**MILLERS FALLS CO.,**

28 WARREN STREET,

NEW YORK.

**No 17.**

**WALKER'S  
CROWN LIFTER AND  
SELF-PULLER.**

**Turns the  
Cork out.**

**Cuts the  
Wires.**

**Removes  
Crowns,  
Seals,  
&c.**

**Duplicate  
orders  
invariably  
follow  
the  
first  
one.**

**Erle Specialty Co., Erle, Pa., U.S.A.**

**OTHER TOOLS ARE VERY GOOD TOOLS, BUT—**

**"YANKEE" TOOLS ARE BETTER.**



Ratchet Screw Driver No. 10.



Ratchet Screw Driver No. 15.



Single Spiral-Ratchet Screw Driver No. 20.



Double Spiral-Ratchet Screw Driver No. 30.



Automatic Drill No. 40.



Reciprocating Drill No. 50.

Sold by Leading Jobbers. Send for "YANKEE" Tool Book No. 2, Just Issued.

**NORTH BROS. MFG. CO., - PHILADELPHIA, PA.**

New York Agents, JOHN H. GRAHAM & CO., 113 Chambers St.



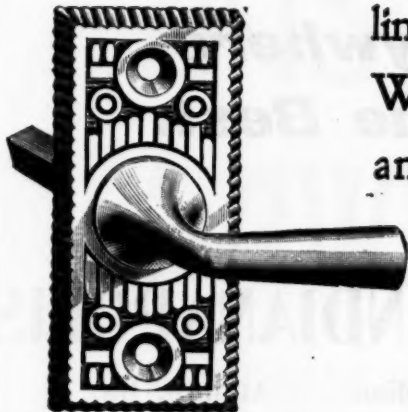
**SAMSON SCREW DRIVERS.  
BITS ARE O. K.**

Send for catalogue of tools to  
**SAWYER TOOL CO., - Fitchburg, Mass**



## Get ready for Flies

by letting us post you on our elegant  
line of Hardware for  
**WINDOW SCREENS**  
and **SCREEN DOORS.**



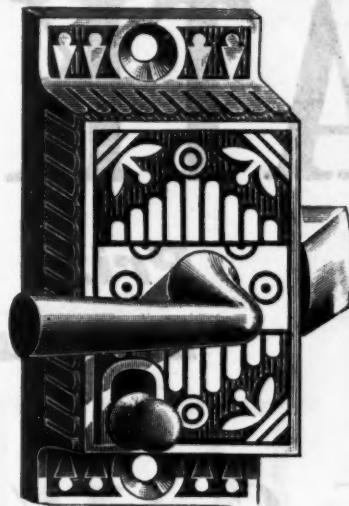
Early orders insure prompt  
shipment.

**READING HARDWARE COMPANY,**  
**READING, PA.**

NEW YORK,  
96 and 98 Reade St.

PHILADELPHIA,  
617 Market St.

CHICAGO,  
105 Lake St.



ESTABLISHED 1835.

## JOHN CHATILLON & SONS,

—MANUFACTURERS OF—

### SCALES,

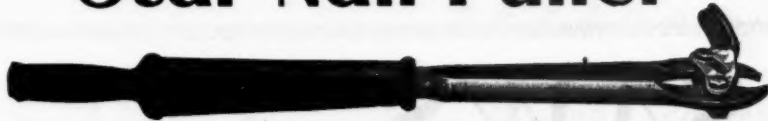
**Butchers' Tools and Machinery**

85 to 93 Cliff Street,

NEW YORK.

Sole Agents,  
**FOSTER BROS. CO.,**  
Butchers' Knives and Tools.  
**PHOENIX KNIFE CO.,**  
Pocket Knives, &c.  
**FRIEDERICH DICK,**  
Butchers' Steels, &c.

## ★ Star Nail-Puller ★



**BEST.  
SIMPLE.**

Self-Opening, No Spring Being  
Used.  
Truss Construction. Easy in  
Operation.

**STRONGEST.  
EFFECTIVE.**

**THE ATWATER MANUFACTURING CO.,**  
SOUTHINGTON, CONN., U. S. A.



**MONCE'S NOVELTY GLASS CUTTERS. INTERCHANGEABLE LOCK STENCILS**

No. 1 Cutter, born 1871, and has been worthy of extensive imitation, that is why I keep it before you.  
We make others. S. G. MONCE, UNIONVILLE, CONN.

## Hardware Men

Can NOW Handle

## Sewing Machines

—WITH—

**PROFIT and COMFORT.**

ONE Hardware House Sells 8,000 per year,  
and finds no trouble.

Send for Catalogue.



The Demorest Mfg. Co. are prepared to furnish the most reliable Machine made for your trade. As they are strong, simple in construction, beautifully finished and guaranteed against all defects, we will back it against any machine made, at any price.  
DEMORST MFG. CO.,  
Williamsport, Pa.

## Clark Expansive

AND

**WRIGHT'S  
Jennings  
BITS.**

Warranted.

Conn. Valley Mfg. Co.,  
CENTERBROOK, CONN., U. S. A.



**A. MUGFORD** 127 Asylum St. HARTFORD, CONN.

NEW YORK OFFICE:

BEARD BUILDING, 120 LIBERTY ST.

## MECHANICS

Will Buy

**UP-TO-DATE**

**TOOLS**



**We Make 'Em**

and Our Prices  
are Right, Too.

SEND FOR CATALOG.

**Braunsdorf-Mueller Co.,**

ELIZABETH, N. J.

# ATKINS SAWS


**Prize Winners Everywhere.  
Because they are the Best.**

MANUFACTURED BY

## E. C. ATKINS & CO., INDIANAPOLIS.

BRANCHES: Memphis, Tenn., Minneapolis, Minn., Atlanta, Ga.

**THE SIMONDS SAW IS THE SAW HE STICKS TO.**



**WHY?**

Because it never fails to please his trade, and the satisfaction it gives makes his trade feel that in other lines he is carrying the best.

**SIMONDS MFG. CO.,**

New York, N. Y., Fitchburg, Mass., Portland, Ore., Chicago, Ill., Seattle, Wash.

SIMONDS MFG. CO., Ltd., New Orleans, La.

SIMONDS SAW CO., San Francisco, Cal.

Severance  
Centering Tool,  
PRICE \$2.00

Combination  
Center Drills,  
PRICE \$1.50 PER DOZ.

With these two tools you can center your work in two operations. It requires at least four in the old way.

Our Catalog for the asking.

J. T. Slocomb & Co.,

Prov.,

R. I.

Chas. Churchill & Co., London, Eng.

**JOHN LOYD.**

Machine Knives, Shear Blades,  
Presses and Dies.

Nos. 550 to 562 Water Street, New York.

## SAWS...

The Established Brands of

RICHARDSON BROS.,  
HARVEY W. PEACE,  
WHEELER, MADDEN & CLEMSEN  
MFG. CO.,  
WOODROUGH & McPARLIN.

**SAWS of Every Description.**

SEND FOR LIST AND PRICES.

**NATIONAL SAW CO., - Newark, N. J.**

...SUPERIOR QUALITY...



**SNELL SCREW DRIVER.**

FOUR COMPLETE LINES CARRIED  
IN STOCK.

SNELL MFG. CO., - Fiskdale, Mass.

**Little Trojan Tack Puller.**

Built to Pull  
all kinds of Tacks.

**HAGEN & REID,**  
Troy, N. Y.



# Speaking of that **AUSTRALIAN SAWING CONTEST,**

The "TEAM MATCH" was of little consequence, so far as a test of Saws is concerned. The contest for championship of the world was the real test of men and saws.

Mr. T. Petitt, who was captain of the winning team in the "team contest," won the

**CHAMPIONSHIP OF THE WORLD,  
using a DISSTON Saw.**



There were four sawing contests in the carnival. DISSTON'S Saws were used by the winners of 3 first prizes, 3 second prizes and 2 third prizes.

After the carnival, the tools used by the contestants in the different events were sold at auction to help defray expenses. All the DISSTON Saws were quickly snapped up at 14 shillings each. Of the other two American makes entered, two saws brought 12 shillings each, whilst the saws used by the winners in the "team contest"

**DID NOT GET A BID.**

## Do not make the mistake

of placing your order for Lawn Mowers until you have received quotations on our New Ball Bearing Lawn Mower.

## They will be Sellers.

Every dealer appreciates the quality of our line and will recognize the merits of this new machine

Send for Circular.

**SUPPLEE HARDWARE CO., Philadelphia.**

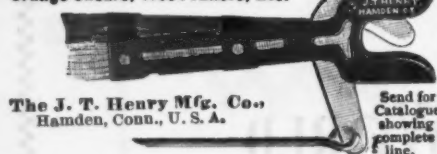
HAND MADE & GUARANTEED  
NO MACHINE GRINDING  
DROP FORGED BLADES  
HONED & READY  
FOR USE

**RAZORS**

CATALOGUES  
FREE.

Swedish Razor Co.  
NEW YORK OFFICE: 20 WARREN ST.

**HENRY'S PRUNING SHEARS.**  
Orange Shears, Tree Pruners, Etc.



The J. T. Henry Mfg. Co.  
Hamden, Conn., U. S. A.

Send for  
Catalogue  
showing  
complete  
line.

**NICOL & CO.**  
Manufacturers of  
Special and Light  
**HARDWARE.**  
EXCLUSIVE AGENCY GIVEN.  
67 W. Washington St.,  
Chicago, Ills., U. S. A.  
Established 1880.

**PLAIN AND RATCHET BIT BRACES.**  
The largest line made in U. S.



**MASON & PARKER,**  
Wohendon, - - - Mass.  
Also Makers of other  
**Hardware Specialties.**  
JOHN H. GRAHAM & Co., Agents, 118 Chambers St., N. Y.

**WOOD'S**

The recognized standard  
in the United States and  
Canada for over 60 years.

Send for 1899-1900  
Catalogue.

**ICE**

CUTTING

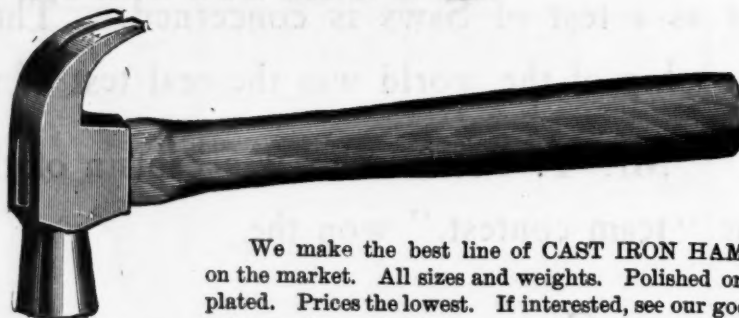
**TOOLS**

**WM. T. WOOD & CO.,**  
Arlington, Mass., U. S. A.

POPULAR  
PRICES.

**"ICE  
KING."**

## HAMMERS



We make the best line of CAST IRON HAMMERS  
on the market. All sizes and weights. Polished or nickel  
plated. Prices the lowest. If interested, see our goods and  
get our prices,—It will pay.

**LOGAN & STROBRIDGE IRON CO.**  
NEW BRIGHTON, PA.

## Machinists' Tool Chests,

MADE OF

Chestnut, Black Walnut, Quartered Oak  
and Cherry.

WRITE FOR CIRCULARS AND PRICES.

**C. E. JENNINGS & CO.,** 101 Reade St., N. Y. City.

**A NEW ENTERPRISE.**  
A Full Line of First Quality  
**STEEL LAID SHEARS.**  
FULLY GUARANTEED.



**NATIONAL CUTLERY CO.,** 3d St. and Lehigh Avenue,  
PHILADELPHIA, PA., U.S.A.

SEND FOR CATALOGUE.

## GEM NAIL CLIPPER.

Cuts, Cleans and Files.

It is a neat, well made, nickel plated article. Put  
up attractively and sold cheaply. Send for circulars  
and prices.

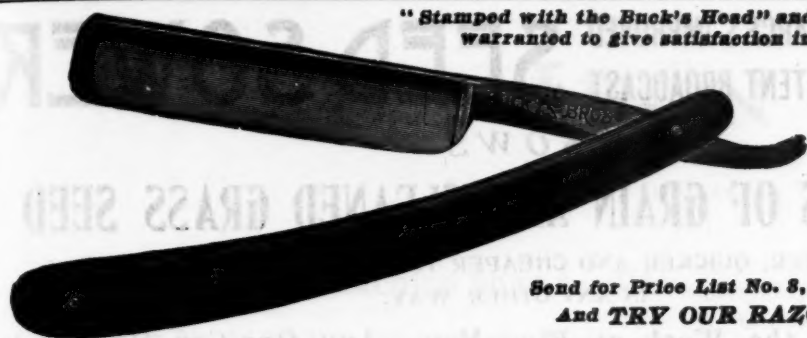
**H. C. Cook & Co.,** Ansonia, Conn., U. S. A.  
N. Y. Office: Smith & Hemenway Co., 296 B'way.



Sample, by mail, 25 cents.



"Stamped with the Buck's Head" and  
warranted to give satisfaction in use.



Send for Price List No. 8,  
And TRY OUR RAZORS.

**BUCK BROTHERS, - Riverlin Works, - MILLBURY, MASS.**  
**HIGHEST AWARD PARIS EXPOSITION, 1889.**



ESTABLISHED 1837.

INCORPORATED 1891.

**THE L. & I. J. WHITE CO.,** MANUFACTURERS OF **EDGE TOOLS.**

BUFFALO, N. Y.

Coopers', Carpenters' and Ship Tools, Plane Irons,  
Cleavers, &c. Full Line Chisels.

New York Office, 45 Centre St.

74 YEARS.

ESTABLISHED 1825.

74 YEARS.

**CELEBRATED HEINISCH SHEARS**  
ACKNOWLEDGED THE BEST.



Tailors' Shears, Trimmers, Scissors, Tanners' Snips, etc.

**R. HEINISCH'S SONS CO.,**

New York Office, 90 Chambers Street.

NEWARK, N. J.

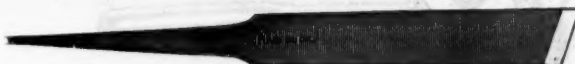
NOT CONNECTED WITH ANY SHEAR COMBINATION.

**Charles Buck, Millbury, Mass., U. S. A.**  
**MILLBURY EDGE TOOL WORKS.**



CHISELS,  
GOUGES,  
CUT and DOUBLE  
IRONS,  
SCREW DRIVER BITS,  
REAMERS,  
CUPPED NAIL SETS, ETC.

I MAKE A  
SPECIALTY OF  
CARVING TOOLS.

Also a Full Line of **RAZORS,**

Hand Forged, Hand Ground, made of Best  
English Steel, branded **CHARLES BUCK.**  
All goods Fully Warranted

SEND FOR CATALOGUE

**IF YOU WANT TO KNOW ASK US**

How to file catalogues, quotations and every class of data, with no more trouble to  
file than to throw in the waste basket, and as easy to get when wanted as  
though in your vest pocket.

FOLDING PAPER BOX CO., South Bend, Ind.

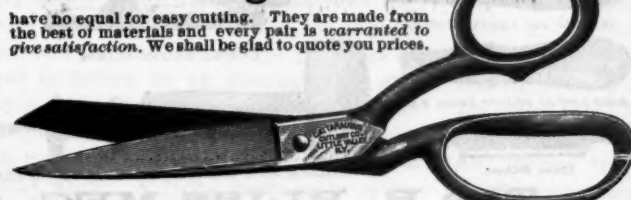
**Cattaraugus Cone Bearing Shears**



Here is where the  
bearing comes on this  
perfect cone.



This is the look  
where the bolt fas-  
tens to the lower  
shear blade.



have no equal for easy cutting. They are made from  
the best of materials and every pair is warranted to  
give satisfaction. We shall be glad to quote you prices.

**CATTARAUGUS CUTLERY CO., - - Little Valley, N. Y.**

**THE CELEBRATED  
RED SEAL SHEARS.**

MANUFACTURED ONLY BY

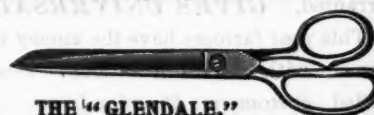
**THE ACME SHEAR CO.**

BRIDGEPORT, CONN.



Jumbo Nail Puller.

Solid Steel Plyers, Wire Cutters, Nail Pullers  
Ticket Punches, Shears, Scissors, etc. Cast, Sheet  
Metal or Drop Forged specialties to order.



THE "GLENDALE."

**THE BRIDGEPORT MFG. CO.**

BRIDGEPORT, CONN.

The  
"ORIGINAL  
JENNINGS"  
AUGERS and  
AUGER BITS.



Genuine have  
"Russell Jennings"  
stamped in full  
on the Round of  
each Bit.

FOR SALE BY ALL HARDWARE JOBBERS.  
The Russell Jennings Mfg. Co., Deep River, Ct., U.S.A.

Established 1774.

**HIGH GRADE AUGER BITS.**  
(BLACK TWIST)

**JOB T. PUGH, PHILADELPHIA.**

**THE  
Ford Ship Augers.**

SECOND TO NONE.

Prices Right.

**THE FORD BIT CO.,**  
HOLYOKE, MASS.

**American Tool Chest Company,**  
NEW YORK.

MANUFACTURERS OF

**TOOL CHESTS**Of all sizes, complete with tools, for Hardware, Toy  
Notion and Variety trades.

Factory and Saleroom,

200 West Houston Street, near Varick.  
Also Machinists' Tool Chests, empty, Tool Cabinets  
and Work Benches. Illustrated Catalogue  
and prices furnished on application.

**NOT IN THE COMBINATION.**

Write for prices on

**Mrs. Potts Sad Iron Handles.****M. SCHRAYER'S SONS & CO..**

49 Blue Island Ave., Chicago Ills.

**GRIFFIN'S**

Improved

**Pressed Steel  
SHELF  
BRACKET.**

(PATENTED.)

There is Nothing Better Made.

Write for prices.

**THE GRIFFIN MFG. CO., - Allegheny, Pa.**

# CAHOON'S PEARCE'S IMPROVED PATENT BROADCAST SEED SOWER

SOWS

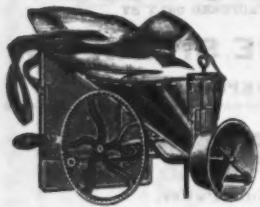
ALL KINDS OF GRAIN AND CLEANED GRASS SEED

BETTER, QUICKER AND CHEAPER THAN IT CAN BE DONE  
IN ANY OTHER WAY.**Saves One-third in Seed. Does the Work of Five Men. Any One Can Operate It.**This machine has been on the market more than thirty years. Is used in all parts of the world. Is fully warranted. **GIVES UNIVERSAL SATISFACTION.**

This year farmers have the money to pay for the best agricultural implements. Can you afford to experiment with untried imitations? Dealers who sell the "Cahoon Sower" can rely on fair profits, and satisfied customers. Circular free.

GENERAL AGENTS AT ALL DISTRIBUTING POINTS.

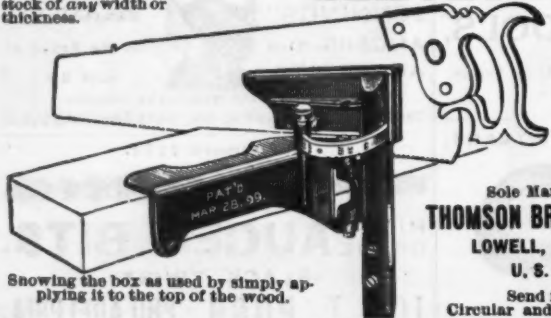
MANUFACTURED ONLY BY

**GOODELL COMPANY, Antrim, N. H.**With it you can cut  
stock of any width or  
thickness.

SEAVEY'S

## MITRE BOX, Improved.

Weights 2 lbs. No special saw needed.

Simple,  
Light,  
Accurate,  
Low PricedShowing the box as used by simply ap-  
plying it to the top of the wood.Sole Manufs.,  
**THOMSON BROS. & CO.,**  
LOWELL, MASS.,  
U. S. A.Send for  
Circular and Discount.Showing the box as fastened to bench or horse, with  
stock in position to be cut.

## STEEL WIRE CHAINS.



We manufacture three types of Steel Wire Chains in various sizes which we can furnish plated, tinned, galvanized or japanned. Also made into Halter Chains, Traces, Kennel Chains, Dog Leads, Tieouts, Cow Ties, etc., etc. Our Plumbers' and Sash Chains are First Quality.

**THE BRIDGEPORT CHAIN COMPANY, Bridgeport, Connecticut, U. S. A.**Send for illustrated leaflet describing  
our new  
**DOMINION PATTERN  
COW TIE and STALL FIXTURE**  
**ONEIDA COMMUNITY, Ltd.,**  
Niagara Falls, N. Y.

Pail Ears

— AND —

Saucepan Handles.

Neatest Designs, Greatest Strength and Finest Finish of any made.

Large stock of all sizes constantly on hand and all orders filled promptly. By the gross, package or in bulk, as desired.

**BERGER BROS. CO.,**  
SEND FOR CATALOGUE. PHILADELPHIA.

## Wood Hardware Specialties,

Carpenters', Machinists' and Jewelers' Tool Chests, Etc. Send for  
New Catalogue.

LEATHER TOP CHISEL HANDLES



APPLE-TREE OR HICKORY CHISEL HANDLES



Plane Blades.



CABINET MAKERS' CLAMPS



LIGNUM-VITE MALLETS.



CHALK LINE REELS.

HAND SCREWS.

**The R. BLISS MFG. CO.,**  
Established 1832. Pawtucket, R. I., U. S. A.